



IS THE CURSE OF NATURAL RESOURCES OCCURING IN INDONESIA? A PRELIMINARY FINDING

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ABSTRAK

Teori menjelaskan terjadinya fenomena kerusakan sumber daya alam sebagai kondisi di suatu negara yang memiliki kelimpahan sektor pertambangan, tetapi pola pembangunannya tidak berkelanjutan. Dalam kasus Indonesia, beberapa penelitian yang dilakukan untuk mengukur kerusakan sumber daya alam terjadi selama era desentralisasi. Oleh karena itu, penelitian ini dilakukan dengan menganalisis kinerja APBD di wilayah pertambangan. Dengan menggunakan analisis share, daerah tertinggi adalah Provinsi Kalimantan Timur, sedangkan yang terendah adalah Provinsi NTT. Sementara itu, dari analisis growth daerah tertinggi adalah Jawa Barat dan kategori terendah adalah Provinsi Banten. Dari analisis kuadran, empat area berada di kuadran I, tujuh area di kuadran II, enam area di kuadran III dan sebagian besar wilayah di kuadran IV. Sejumlah besar daerah penambangan di kuadran IV ini wajib menjadi catatan serius bagi Pemerintah Pusat, sebagai indikasi awal munculnya kerusakan sumber daya alam di Indonesia.

Theory explains the occurrence of natural resource cursed phenomenon as the conditions in a country has an abundance of mining but unsustainable. In case of Indonesia, several studies conducted to measure natural resource curse on decentralization eras. Then, this research conducted to investigate this phenomenon by analyzed the performance of APBD in mining areas. By using share analysis, the highest area is East Kalimantan Province, while the lowest are NTT Province. Meanwhile, from growth analysis, the highest area is West Java and the lowest category is Banten Province. From the quadrant analysis, four regions are in the quadrant I, seven regions in quadrant II, six regions in quadrant III and mostly the rest regions in quadrant IV. This massive number of mining regions in quadrant IV, shall inflict a serious note for the Central Government, could be an early indication of the emergence of natural resource curse in Indonesia.

1. FOREWORD

1.1. Introduction

Numerous theories explain the occurrence of the natural resources curse phenomenon as a description of the conditions in a country or region that actually has an abundance of natural resources (SDA) especially the mining sector, however, it is not followed by the development of other sectors (Humpreys et al, 2007). In the case of the Netherlands, the abundance of the mining sector caused poor performance in the manufacturing sector so called Dutch Disease. Meanwhile, another case for example is for few developing countries, the agricultural sector is the one being deteriorated. As a result, the management of the mining sector were proven did not provide any welfare for the local community, in contrary this eventually contribute more negative impacts, therefore causing problem purported as natural resource curse (Auty,

1993). According to Karl (2007), the occurrence of this natural resource curse is driven by poor economic performance, that also caused by non-transparent governance and the rise of social conflicts that arise related to the abundance condition of natural resources.

Consequently, countries or regions that rely too heavily on natural resources are often regarded as unsustainable patterns of development (Siegle, 2008). The study of Ross (1999), even reinforcing the argument that the massive extraction pattern of the nonrenewable minerals industry will deplete the reserves much faster and caused negative impacts in the medium and long periods. Some of the negative impacts of other natural resource curses that have been studied including Busse and Groning (2013) proved that in countries with abundant natural resources, its exports have led to an increase in the level of corruption in the country. Similarly, Kolstad

and Wiig (2009) found that indications of countries with abundant natural resources are tend to be trapped in a phase of low economic growth and having difficulty to get out of the poverty trap.

Another study conducted by Frankel (2010) mentioned the occurrence of the natural resource curse is also triggered by the interrelationship between world price volatility in addition to bad government management. This government management is considered to play an important role in measuring differences in the impact of natural resource curse in a country or region. Based on Hammond (2011) research, which mentioned that the level of management in government along with the standard of living and corruption patterns greatly affects the impact of the occurrence of natural resource curse in a country. The natural resources curse will also entrap the country in the patron client's economic practice that could ease the access of natural resource exploitation permits to groups that conduct nepotism with the authority, as well as rent seeking practices due to economic decentralization to the districts / municipalities (Sugiri and Adisaputra, 2011).

In case of Indonesia itself, several studies have been conducted to measure whether the phenomenon of natural resource curses also occur both at national and regional levels. Research conducted by Komarulzaman and Alisjahbana (2006) for instance, tested the hypothesis of natural resource curses In Indonesia by using cross section of a regression data and found a conclusion that, within a province with abundant natural resources, they are relatively stuck in phenomenon of natural resource curses. Another study conducted by Hidayat, et al (2014) in East Luwu Regency, proved that the mining sector is considered to be a major contributor to the emergence of environmental pollution and social disorder. By using the Social Economic Balance System (SNSE) it is also verified that coal mining has only a 2% employment impact on the total working population.

Comparable results were found by Martawardaya, et al (2015) by taking samples of districts and municipalities with revenue from profit sharing (DBH) of oil and gas rated above the national average. In conclusion, it does not mention the occurrence of the phenomenon of natural resource curses in Indonesia. Nevertheless, it is concluded that Indonesia is not entirely out of the phenomenon as some indications lead to a relationship pattern. Correspondingly, the findings at the district and municipal levels still indicate the absence of a positive contribution of the abundance of natural resources with economic performance and other key social indicators.

By depth observation, it can be found that the role of the mining sector in many areas is still very dominant. The contribution to the mining sector manifested through the amount of profit sharing with natural resources (DBH) even extends far beyond the contribution to regional revenue (PAD), thus constructing a dependency pattern, as described in

Haryanto's research (2017). In this research, shows indications of strong dependency pattern of oil and gas rich districts such as Siak Regency, Bengkalis, Musi Banyuasin and Kutai Kertanegara to oil and gas profit sharing (DBH). In another study, Haryanto (2017) also concluded that the fiscal capacity of oil and gas-rich areas is much greater than that non-oil-rich region, but the rate of growth is even smaller. These findings corroborate the results of Perrels (2005) study related to the production age of non-renewable natural resources.

Due to its non-renewable nature and limited production age, another finding in Haryanto (2017) recommends that oil-rich areas shall immediately initiate sectoral migration from the mining industry to a sustainable non-natural resources intensive industry. To facilitate this process, the revenue of mining areas in which relatively still considered large shall be used as the initial capital of migration. The process should not be delayed because of the competition with the emergence of the phenomenon of the natural resources curse itself (Purwadinata, 2016). Whenever the natural resource curse precedes the passage of the sectoral migration mechanism, then the effort should be taken will be more severe.

Especially since 1 January 2001, Indonesia formally adopted the practice of fiscal decentralization of the reform era. The fiscal decentralization of the reform era then changed the emphasis of execution from the provincial level into districts and cities, through consideration of cutting the bureaucratic chains of service to the community. The district and the city as the closest institution to the community are assumed to know perfectly what the community needs (Bandiyah, 2015). The fiscal decentralization of the reformation era is also marked by the handover and deliberate detachment of authority of affairs to regions in accordance with the principle of money follows function. There are only five matters left under the authority of the central government, namely fiscal and monetary, religious, judicial, defense and foreign policy (Rinaldi, 2012).

Following up on the money follows function principle, the central government then delivers financing sources to the regions and allocates Transfer to Regions (TkD) to cover the existing financing gap (Wahyuni, 2009). Transfers to the Region itself comprise of the components of the DBH, the General Allocation Fund (DAU) and the Special Allocation Fund (DAK). Profit sharing (DBH) and DAU are expected to reduce the gap between horizontal imbalances while DAK is set to reduce the vertical gap between the central and the regional government (vertical imbalances). If the DBH and DAU characteristic are block grants, through the usage based on priority aspects of their respective regions, the DAK has specific characteristics to accelerate infrastructure development in the region (Swandewi, 2014).

Theoretically, the process of implementing fiscal decentralization in many countries are based on the autonomy of the income aspect or the decentralization

of the spending aspect. Referring to the Transfer to Region mechanism, the implementation of fiscal decentralization in Indonesia tends to embrace the decentralization aspect of non-income expenditure aspect (Solihin & Niken AL, 2010). This condition is the main basis of the emergence of some findings that assume that the implementation of decentralization aspects of spending in Indonesia, it is not in accordance with the initial intention to create regional independence and improving the quality of public services. The research of Tjahjono and Rika Oktavianti (2016) can be a small-scope of example of this discrepancy. In this study, the DAU and DAK variables that become components in TkD were proven to negatively affect the aspect of regional autonomy in DIY Province significantly. This means that if the DAU and DAK increase, then the level of regional independence will actually be reduced. While the ratio of the effectiveness of Regional Revenue (PAD) as a proxy of independence has not significantly affect the independence of the region.

The impact of fiscal decentralization on Local Budget (APBD) performance in the expansion area has not been very encouraging. The Wurangian, et al (2017) study, for instance, took the sample location of Tomohon City as an example of a new expansion area in the era of fiscal decentralization. It was concluded that the financial capacity of Tomohon City's APBD 2007-2015 period was in very low classification. The Tomohon fiscal decentralization degree ratio in that period is a miniscule of about 0.00% - 10% with a large dependency ratio on TkD funds. Kharisma findings (2013) for the level of analysis of Indonesia, even mentioning that the APBD of each region has not been able to encourage economic growth. The potential for impetus to the economy is slightly emerge from the aspect of consumption spending both in Java and outside Java.

Nevertheless, some findings also implicitly state that there is a anticipative result of positive role of fiscal decentralization implementation on APBD performance. The findings of Nurhemi and Guruh Suryani (2015) explained that fiscal decentralization in different periods positively encourages economic growth in Java and outside Java. Another study by Sasana (2015) also yielded positive findings from the implementation of fiscal decentralization on the rate of economic growth, labor absorption and inflation management of provinces in Indonesia. This means that responsible management of budgets in the era of fiscal decentralization, provides a positive impetus to the management of the real sector, the employment sector and the monetary sector in the region.

1.2. Problem Statement

Based on the description, it can be concluded that fiscal decentralization has the potential of positive and negative role to the region while still attentive to several aspects to be another determinant such as the readiness of each region, the quality of governance management, the quality of human resources (HR), as well as the openness of the area. The same requirement

is also believed to be the determining factor for the emergence of the natural resource curse in a country or region. Some countries or regions are able to circumvent the curse of natural resources, while other countries or regions are exposed to the phenomenon. Unfortunately, the study that attempts to see the correlation between APBD performance and the quality of Human Development Index (IPM) in the mining areas has not been conducted. The precedent actions were dominated by the discussion on the aspects of oil and gas mining alone, while other types of mining such as metals and other minerals have not been widely analyzed.

Therefore, this research is then conducted by trying to analyze the performance of APBD in mining areas as a whole, both oil and gas, metals and other non-metals. Taking into account the characteristics of each type of the mine, expectantly it could obtain a comprehensive analysis in explaining the phenomenon of natural resource curse in Indonesia through the linkage or performance of the APBD supported by the mining sector with the quality of its HDI (IPM). Far along, the expected results of this research can be used as the basis for the main information for policy makers either in the central or in the region in order to create sustainable economic growth.

2. THEORETICAL LITERATURE

2.1. Natural Resource Management

The analysis of APBD performance of mining areas is actually interesting to be discussed, especially in the era of fiscal decentralization. Like the previous reviews, this condition is non-detachable from the emergence of the phenomenon of the curse of natural resource, both Dutch Diseases and other mechanisms. It is interesting to observe the use of the "dead chickens in rice barn" a proverb as the depiction of the natural resource curse or the paradox of abundance in a country or region endowed with tremendous wealth of mining (oil, coal and other minerals). The paradox is described as increasing interest from extractive resources does not automatically support the performance of economic growth, and equitable distribution of development and governance. The abundance of natural resources are enjoyed asymmetrically by the whole community (PolGov, 2016).

The alleviation of the natural resource curse ordeal being discoursed by some experts such as Amundsend (2014) which explains that interest derived from natural resources, should be channeled to the productive economy or even commandeered by the ruling elite to enrich themselves, for the achievement of status and conquering of power. The question arises from the institutional quality aspect is whether natural resource interest are spent to stimulate national economic production or development or solitary for consumption, capital flight and non-productive investment. Amundsend added that there is an important role of governance institutions in the natural

resource matter is the extraction institutions associated with the process of resource extraction and income and redistribution institutions associated with the distribution of power.

The emergence of issues related to the extraction and distribution institutions are inseparable from the belief that natural resources fund has a face of duality between extraction and redistribution itself (Fatah, 2008). The natural resource funds in terms of extraction aspect aim to ensure the process is sustainable by emphasizing the importance of saving and investment activities. Nevertheless, simultaneously, it also has a face of redistribution, especially between generations so that the rent cannot only be enjoyed on the current generation (Collier, 2012). Ironically, the rent also presents the cost or negative impact of the rise of renters. There are at least three types of renters: 1) rent creation as the company seeks to raise the rent created by the state through bribery of politicians and bureaucracy; 2) rent extraction in which politicians and bureaucrats seek to raise rent managed by companies by threatening companies through high-cost regulation and 3) rent seizing slightly different from other patterns of private actors competing for rent while state actors compete to supply them Gbegi, D & Adebisi, J.F, 2013).

Rent itself can be defined as excessive income compared to the minimum level that should exist. This minimum level that should exist is defined by Khan (2000) as next-best opportunity income in a competitive market beyond profit. Johnston (2003) defines natural resource rents as the difference between the value of production and the costs incurred for extraction. The extraction fee consists of normal exploration, development and operating costs as well as the required rate of return or interest rate plus profit sharing for the contractor. In his paper, Lubiantara (2012) asserted that the rents of this natural resource produce two sides of a paradoxical currency because in addition to generating that abundant profits, consequently also led to the emergence of renter hunters.

The emergence of these renters if linked back to Ross's opinion, can be transformed in the form of rent in the private sectors or arising from within the body of the government itself. When the role of rent is more dominant, the institutional strength will weaken and the distribution of wealth from natural resources becomes uneven (Segal, 2011). When the distribution of natural resources wealth becomes uneven, in turn it will accelerate the emergence of natural resource curse at both national and regional levels. In the case of Indonesia, Purwadinata research (2016) about royalty contribution to regional income in West Sumbawa Regency 2006-2012, concludes that the contribution of royalty is not optimal in supporting the growth of budget of APBD and also impact to society. The allocation of royalty funds also can not be utilized for the expansion of productive sectors due to non-transparency and the number of existing rent-seeking actors.

In the same spectrum, nevertheless prioritizing analysis on the local welfare conditions, Suharto et al (2015) research is interesting to observe. By taking samples in four sub-districts in East Kalimantan Province, Suharto et al concluded that local residents in four sub-districts in East Kalimantan Province felt more negative changes than positive due to coal mining. The negative impacts include increased cost of living and its implications, environmental conditions and agricultural land, while the absorption of direct labor is also not very significant. The key lessons learned from this study are the different impacts between communities directly adjacent to the mining sites and indirect communities adjacent to the mine site.

The damage impact correspondingly submitted by Yudhistira, et al (2011) by taking the case of sand mining in the area of Mount Merapi. The illegal mining activities of the sand might cause a physical damage in form of cliff landslide potential, lack of springs discharge as well as road damage and air pollution. While the social impact that arises is the increased potential for social conflict due to rampant immigrants from outside areas that participate in illegal mining. In other cases, the illegal gold mining is also analyzed by Ricardo (2016) with a case study in Landak District, West Kalimantan. The rise of illegal gold mining (PETI) was allegedly arose due to weak supervision from local government officials.

However, the problem becomes more complex when most of the perpetrators of PETI are citizens who depend on their activities from mining activities. As a result, until now the local government just socialize the dangers of PETI, without ever being able to provide a solution for to stop PETI. This finding is also a real example of the mechanism of the Dutch Diseases phenomenon due to weak government institutions. The perpetrators of PETI are also not interested if given an alternative to migration of non-PETI work because the results given are not as much as PETI results. This PETI activity is very dangerous, especially the impact on public health around the mining site. Juniah et al (2013) gives extra attention to this issue as well as observing the ecological scarcity in the mine area that affects the low carbon uptake. In the end, the quality of public health around the mine will be very low, in contrast with the expensive cost of healthcare.

2.2. Decentralization Era and Natural Resource Impact

The impact on public health and the impact of a decent livelihood rate will ultimately lead to the process of creating quality output from the community in the form of the Human Development Index (HDI/IPM). This HDI (IPM) was first developed by the United Nations Development Program (UNDP) for the United Nations Development Program (UNDP). This index is a concept that underlies a development process in a country by putting human welfare as the ultimate goal of the implementation of development (Setiawan & Abdul Hakim, 2013). Efforts to achieve the

welfare can be assessed based on three fundamental components of society that include life (health), knowledge (education) and decent living opportunities. This concept asserted that man should be the main subject of development and participate in stimulating the process of improving the quality of human life itself (Adelfina and I Made Jember, 2016).

In the opinion of Lilya and I Ketut S (2014), the high level of HDI (IPM) determines the ability of the population to absorb and manage the sources of economic growth in relation to technology and institutions as an important means to achieve economic growth in the future. Fiscal decentralization is also considered to have an impact on the achievement of HDI (IPM) in the regions. Patta's research (2012) tries to analyze the influence of economic growth, percentage of the poor, government spending on education, health and inequality of income distribution on HDI (IPM) quality in South Sulawesi Province. It was concluded that all of these variables were significantly influenced the establishment of HDI (IPM) in South Sulawesi Province. A study supporting this finding was also conducted by Muda, et al (2014) which concluded that economic growth and Local Budget (APBD) capital expenditures simultaneously had a significant effect on the establishment of HDI (IPM) in North Sumatra Province, although in partial that only economic growth which has given positive effect.

Therefore, it should be considered to create a synergy between the pattern of regional economic development with environmental and mining management in order to create adequate HDI quality. The adverse impact of damage is the easiest indication of the absence of this synergy. By Fauzi (2009), the disharmony of economic development with the preservation of the environment and mining arises due to consumption patterns and policy failures. Massive consumption patterns will trigger a large demand and cause environmental stress. On the other hand, in developing countries, this condition is further exacerbated by the failure of the government in preparing institutional and pro-environment policies on environmental and mining interests. Hence, the model of sustainable regional development then becomes a necessity. This sustainable regional development model is realized in the form of a structural transformation of the natural resource-based economy towards a renewable local resource base in order to maintain cross-generational consumption (Malanuang, 2009).

The sustainable regional development model faces challenges in the era of fiscal decentralization. Positioning the authority of natural resource management to the district and city level was originally intended to divide the burden and role to the main service guard of the district and city. Unfortunately, these hopes are not created because many cases of environmental violations actually occur due to the issuance of permits by district and city governments (Mustofa, 2010). In the Act (UU) No. 23 of 2014 on

Regional Government, the authority of mining management is finally withdrawn to the province. Mining areas are being requested to improve the internal control aspects through the AKIP evaluation tasks and review the budget work plan, carefully expected to assess the accuracy of the program in line with efforts to overcome the expenditure effect that is the initial criterion of the disaster occurrence of natural resources. The AKIP apparatus developed policies and control procedures to minimize corruption, fraud, theft and renters (Tohom, 2016).

3. RESEARCH METHODOLOGY

3.1. Type of Research

Based on the nature of the problem, the study will be classified as descriptive research. This type of descriptive research is defined by Suryabrata (1983) as research that aims to perform a systematic and accurate description of the facts and the nature of a particular population or region. For this study, the description to be conveyed is a further explanation of the relationship between Local Budget (APBD) performance and the quality of HDI (IPM) in mining areas by taking into account the various attributes that are inherent in accordance with the nature of the population. By describing the performance of Local Budget (APBD) and the quality of HDI (IPM) in the mining area, expectantly it could draw a conclusion whether the phenomenon of natural resource curse actually happened in Indonesia. If the result indicate there phenomenon is happening the policy shall be made based on the analysis of the results of the study. If the result is negative, it still necessary to convey a solution that must be taken to prevent the occurrence.

3.2. Analysis Methodology

Through the perspective of the research approach, this study uses quantitative methods beneath the calculation of several indicators that describe the ratio of independence of the APBD (share) and the prospect of economic growth in the future (growth) in mining areas. To complete the analysis of the mechanisms of the natural resource curse, an HDM value will be added in the analyzed areas. Indicator of regional independence (share) is expected to provide a picture of how much independence aspects in their respective areas, especially in financing their own spending needs. While the indicator of economic growth prospects (growth) is expected to be a guidance for the region in assessing the effectiveness and efficiency of various levies that have been the spearhead of APBD funding.

By mathematical formula, the share indicator is calculated by using the ratio or ratio between:

$$Share = \frac{PAD+DBH}{TB} \dots\dots\dots (1)$$

Whereby:

PAD : Regional Revenue

DBH : Revenue Sharing Fund (Tax and Natural Resource)

TB : APBD's spending

Meanwhile, *growth* indicator calculated by:

$$Growth = \frac{(PAD + DBH)_t - (PAD + DBH)_{t-1}}{(PAD + DBH)_{t-1}} \times 100\%$$

..... (2)

Whereby:

PAD : Regional Revenue

DBH : Revenue Sharing Fund (Tax and Natural Resource)

t : current period

t-1 : previous period

In relation to the sample location of the analysis, selected mining areas throughout Indonesia are consolidated administratively per island basis. Thus, the analysis will be placed at the provincial level but reflecting the data from the entire district or city that is a mining location. Further, it will envisage the comparative analysis of APBD performance based on mining types of each region both oil and gas and other mineral resources. Separation of area based on data of mining type obtained from Ministry of Energy and Mineral Resources (KESDM) c.q. Directorate General of Minerals, which own the publication of map of mining distribution in Indonesia in 2014. Based on the data, it is known that the total holders of Mining Business License (IUP) in Indonesia are aaround 10,922 permits with details as follows:

- a) The Sumatera Island has a total of 3,037 IUPs scattered in NAD Province (149 pieces), Sumut (111), Riau and Kepri (250), West Sumatera and Jambi (678), South Sumatra and Babel (1443) and Bengkulu and Lampung Provinces (406). For comparison of mining types in Sumatera Island, the largest IUP is a metal IUP of 1,500 pieces, followed by coal IUP of 992 pieces and non-metal & stone IUP of 545 pieces;
- b) The Borneo Island has a total of 3,838 IUPs consisting of Kalbar (682), Kaltara (251), East Kalimantan (1,192) and Kaltengsel (1,709). For the type of mining on the Borneo island is dominated by coal IUP of 2,687 pieces, followed by metal IUP of 737 pieces and non-metal & stone IUP of 414 pieces;
- c) The Sulawesi Island and North Maluku has a total of 1,575 pieces of IUP that evenly spreaded throughout the Provinces of North Sulawesi-Gorontalo and Malut as much as 950 units, Sulsel-Sulbar and Sultra provinces of 959 units. The majority of mining is metal IUP (1,076 pieces), non-metallic IUP and stone (393 pieces) and coal IUP (106 pieces);

- d) Papua and Maluku Islands as a whole have 674 IUPs, in which covering Maluku as many as 436 IUPs while Papua are 238 IUPs. Observed from the type of mining, Maluku is dominant for the metal IUP as much as 401 pieces, then 23 non-metal and stone IUPs and 12 coal IUPs. While in Papua is dominated by coal IUPs of 119 pieces and then 112 metal IUPs and non-metal IUP and stone as many as 7 pieces of IUPs;
- e) Java, Bali and Nusra as a whole have 1,800 IUPs spread in Java as many as 1,334 IUPs and Bali Nusra as many as 466 IUPs. In Java itself the dominance of IUP is non-metal and stone (1,020 pieces) followed by metal IUP (307 pieces) and coal IUP of 7 units. While in Bali and Nusra dominance is metal IUP of 341 pieces, then non-metal and stone IUP amounting of 124, and 1 coal IUP.

3.3. Type of Data

Based on the aforementioned classification, that will be combined with data related to the performance of APBD, obtained from the official source of the Ministry of Finance c.q Directorate General of Fiscal Balance (DJPK). For the selected year of observation of 2010-2016, whereby the data from 2010-2015 being use are the realization data of APBD, meanwhile the data of year 2016 are still budget data. From the calculation result, using share and growth indicators, each region will be plotted and divided using quadrant analysis method into four regional criteria. Each of the regional criteria of the area, certainly has their own meaning:

- a. Quadrant I: is a region with high share and growth value. Thus the area in the first quadrant I is a priority area that has large independent APBD as well as the prospect of positive growth in the future;
- b. Quadrant II: is an area with a low growth value but has a relatively large share. The low value of growth can be interpreted as, unoptimal management of the potential of the region, or it has reached the edge of the final period of a certain sectoral growth;
- c. Quadrant III: area with high growth classification but its share value is still low. In contrast to the area in quadrant II, quadrant III areas typically have problems with the management of regional operations so that the burden of regional spending is relatively high;
- d. Quadrant IV: illustration from this area is a quadrant with low growth and share value. Consequently, this area is defined as an area that must be prioritized by the central government through various aid schemes available;

As a research, it contains several weaknesses, hence the researcher provides some research restrictions. The first limitation of research is related to the issue to be analyzed. Most of the data used in the

analysis is secondary data a financial APBD without explaining the quality of its use such as Total Expenditure or PAD and DBH. The next restriction is related to observation year data conducted around 2010-2016 where 2010-2015 data uses realization data of APBD while data of year 2016 still use APBD budget data. This is due to the difficulties in obtaining the consolidated data of APBD as a whole. Another possible disadvantage is the use of regional consolidated data with different mining characteristics between oil and gas and other mineral resources.

4. RESULTS AND DISCUSSION

Several things that form the basis for calculating the performance of APBD in mining areas can be described based on the analysis of share and growth. In overall, the analysis is elaborated as:

4.1. Share Analysis

The share analysis in the mining area is performed with the aim of analyzing the contribution of the mining sector in establishing the independence aspect in the region. Using the share analysis calculation, East Kalimantan (East Kalimantan) still has the largest share compared to all other mining areas in Indonesia, amounting of 76.76 followed by Riau Province (68.53), Riau Islands Province (59.52) and South Sumatera Province (47.07) and South Kalimantan Province (46,23) across the 2010 to 2016. The high share rate in East Kalimantan Province and other areas indicates that the contribution of the mining sector that established the independence of APBD in the provinces are relatively high in financing its spending. Fascinatingly, judging from the geographical distribution, all regions that are in the highest rank for share value, the majority are in Sumatra Island namely Riau Province, Riau Islands Province and South Sumatera Province (Table 1. attached).

While the rest are in the island of Kalimantan, the province of East Kalimantan and South Kalimantan Province. None of the representative regions of Java Island and Sulawesi Island is included in the highest category. Judging from the distribution of the mining type, in majority have metal mine type. The province of East Kalimantan are still the only one relying on coal mines. While from the number of IUPs owned perspective, in the province of East Kalimantan has about 1,192 pieces of IUPs while Riau Province and Riau Islands only have around 250 IUPs, South Sumatera Province as many as 1444 IUPs and South Kalimantan Province with the number of IUP almost reached 1799 IUPs altogether with South Kalimantan Province.

Based on this fact, the high independence of the mining area to date is due to the large number of IUPs owned. This means that the mining areas are assumed to remain in the peak production period of the mining sector. Considering the nature of non-renewable mines, mining areas should begin to think about promoting other non-mining sectors in order to achieve sustainable development in the region.

Remarkably, the result of the greatest share value of these areas if juxtaposed with the analysis of its HDI (IPM) value shows a satisfactory number. On a national average, the HDI (IPM) rate ranges from 70.88 with the minimum HDI (IPM) number is 62.07, while the maximum figure is 78.50. East Kalimantan province for example as the region with the largest share in Indonesia has an average value of HDI (IPM) from 2010-2016 amounted to 75.5 or the third highest coming after the Provinces of DKI Jakarta and DIY Province. Similarly, Riau Province with an average of 74.2, Riau Islands with an average value of 75.0 and the province of South Sumatera with an average of 71.0 that entered into the criteria of the largest HDI (IPM) value in Indonesia.

Analogous to what happens to the mining area group with the highest share value, the majority of the regions in the regional group with the highest share value are metal mining areas except for East Nusa Tenggara (NTT) province which has non-metal mining. The province of NTT as seen in Table 2 has the smallest share number (11.9) among all regions in Indonesia. Marginally above it is Maluku Province with 12.2 share, West Sulawesi Province (Sulbar) of 12.6, Papua province of 13.4 and Gorontalo Province worth 13.6. Distribution of regions that occupy the position of the five lowest share of its share are in majority located in Eastern Indonesia.

The classification of the type of mining production in the group of regions with the smallest share is more varied, between in metals, non-metals and coal compared to the types of mining management in the previous group. Unfortunately, the low share rate also indicates that the independence of APBD in these areas is still very dependent on the allocation of Transfer to the Region (TkD). However, if further analyzed, the low share value of these mining areas is positively correlated with the marginal number of IUPs owned. Such as East Nusa Tenggara (NTT) which only has the lowest share (11,9) from all regions in Indonesia. Thus, the assumption that the characteristics of the mining type possits an effect is not proven (Table 2. attached).

The small number of IUPs owned has an effect on the contribution of the mining sector in the regions. In addition to the independence that is still dependable onto the central government, the region is also unable to increase its HDI (IPM) figures. Looking at Table 2, overallly the value of HDI (IPM) in regions with small share is still below the national average of 70.88. Gorontalo Province for example has only average HDI (IPM) value from 2010-2016 amounted to 68.8, while NTT Province average value of its Ipm is even lower standing by 65,7. Papua Province even categorized as an area with a minimum HDI (IPM) value in Indonesia of 62.1.

Looking at the whole analysis, it can be concluded that the phenomenon of natural resource curse does not seem to occur in mining areas in Indonesia. The contribution of the mining sector which is still in the peak production period can be utilized by several regions to increase its HDI (IPM) value. However,

referring to the previous recommendation by Martawardaya, et al (2015) that it become necessary to raise awareness of the future pattern, since it was indicated that there is potential and path for the occurrence of natural resource curse in the coming period, the results in this study are also aligned. The mining sector contribute positively to regional independence and the establishment of HDI (IPM) is still strongly influenced by the number of IUPs managed by each region. Areas with a large number of IUPs are able to achieve independence and the establishment of a superior HDI (IPM). Conversely, the area with small number of IUP is still relatively constrained both in terms of independence and its HDI (IPM).

4.2. Growth Analysis

The analysis of growth in the mining area is performed to comprehend whether the mining sector still has the prospect of encouraging economic growth in the region in the future. Centering on this objective it shows a clear distinction between future-oriented growth analysts (future aspect) compare to the share analysis focused on the current aspect. By means of the data growth analysis result in Table 3, the region with the highest growth value is West Java Province (Jabar) with an average value of 18.1. Followed Central Sulawesi (Central Sulawesi) with a value of 15.6 followed by West Papua Province of 14.7, subsequently by West Sulawesi (Sulbar) of 13.9 and South Kalimantan with a value of 12.6.

By referring to regional composition with the highest share value in Table 1, it depicts very different from regional composition with the highest growth value in Table 3, except for South Kalimantan province which simultaneously has high share and growth rate. This fact would further strengthen the argument of the need for awareness of mining areas in the management of regional financial management. In Table 1 it is observable that the contribution of the mining sector is still positive to support the independence and HDI. Assuming that the management of the mining sector has not reached a period of decline in production. However, in Table 3 it is observable that regions with high share value do not have positive growth. Due to this reason mining areas should immediately develop a non-mining alternative sector or called sectoral migration (Haryanto, 2017) to achieve sustainable regional economic growth (Tabel 3 attached).

The remaining problem with the composition in Table 3 is the low average rate of HDI (IPM) in the area. The regions with positive growth values were still constrained by the HDI (IPM) scores below the national average such as Central Sulawesi (69.7), West Papua (66.4), Sulbar (67.2) and South Kalimantan (69.7). Merely West Java Province that is still has relatively average value of its considerably high HDI (IPM) of 71.4, although the inclusiveness of infrastructure possessed is also considered to influence. However, it can generally be concluded that areas with high growth

categories have not been correlated with the good HDI (IPM) value.

Several scenarios may be presented to address this issue. The first scenario is due to a shift in the contribution of the main sector in the region, especially West Java Province. Although it still has a large IUP associated with the management of its mining sector, West Java Province also began to develop several other alternative sectors such as services, trade and tourism. Several non-mining alternative sectors have begun to have an impact on Regional Revenue (PAD), hence the role of the mining sector is no longer the mainstay, although still within the initial period of development of alternative sectors.

The other scenario is related to the production period of the mining sector which may still have not reached its peak, accordingly the region has chances to continue to grow in the future. Unfortunately, these areas still depend entirely from the mining sector and have not started to look at opportunities from other sectors development. These areas do not have adequate budget to perform an effort to increase the HDI. As a result, the value of HDI (IPM) establishment in the regions is small and hovering below the national average of HDI (IPM). Hopefully, with the positive growth rate, the region still has the opportunity to keep developing and improve the value of HDI (IPM) simultaneously (Table 4. attached).

The hypotheses and scenarios proposed in Table 3 analysis are reinforced by the findings centered on Table 4, which illustrates the composition of mining areas with the lowest growth values. Excitingly, all of the regions in Table 4 have negative growth values or indicate there is no future growth potential. Fascinatingly, the composition of the region can be divided into old areas that have been established that have a high HDI (IPM) value (NAD Province, Sultra Province and North Sumatra Province) and newly created regions (Banten Province and North Maluku Province) that are still being constrained by its HDI (IPM).

The analysis based on Table 4 also provides an interesting fact for Banten Province which is in the lowest position for its growth value. Banten province currently does not regard mining as the main sector in the region so it is not surprising if they are in the lowest position in Table 4. This conclusion is also reinforced by the results of Haryanto (2017) study which states that the province of Banten and some districts and cities is included in the category of independent areas seen from the contribution of non-oil and gas sectors.

4.3. Quadrant Method Analysis

Based on the results of share and growth analysis in the previous elaboration, all mining areas will then be re-analyzed by dividing into four categories using quadrant analysis method. This quadrant method approach will analyze areas based on share and growth simultaneously. This is what distinguishes it from a partial share or growth analysis. Thus, the result of quadrant method analysis can be different or equal to

result of partial analysis for each region. A detailed explanation of the analysis of this quadrant method elaborated as follows (Diagram 1. attached):

- a. **Quadrant I:** The quadrant I includes four areas namely East Kalimantan Province, South Sumatra Province, South Kalimantan Province and West Java Province. The inclusion of these four regions into quadrant I is widely expected, since East Kalimantan, South Kalimantan and South Sumatra province themselves consist of areas with high share while the province of West Java inclusion is due to its growth value which come in highest category. Happens to be in quadrant I indicates that these four regions, having significant independence as well as the potential for positive economic growth from the mining sector. Judging from the type of IUP managed, these four areas also represent different types of mining. Province of East Kalimantan and South Kalimantan is dominated by coal mining type, South Sumatra Province dominated with metal mining, while West Java Province concentrated to non-metallic and stone types. This position bode well as a development strategy for each province in accordance with their respective priorities. For the Government of Province of East Kalimantan, South Kalimantan and South Sumatra quadrant I position can be utilized as initial capital for the development of other non-mining sectors to preserve the rate of growth and regional economic development. Meanwhile for the Government Province of West Java this could be used for strengthening the sectoral migration, which has started in the previous period;
- b. **Quadrant II:** seven regions are included in this category, which are: Central Sulawesi Province, West Papua, West Sulawesi, North Sulawesi, Babel, Kaltara and Central Kalimantan. The position in this quadrant II illustrates the condition of the region with the potential for positive economic growth, however, currently being constrained by low regional independence. Referring to the results of partial analysis, especially the value of share, the areas in the quadrant II is located in the middle-to-low category while its growth value is relatively positive. The low level of regional autonomy can be seen from two perspectives, either from the un-optimal contribution of the mining sector or the tremendous burden of APBD management. Comparing the effort to solve between the two, the efficiency and diversion of unproductive spending in the APBD, it seems easier to be done by the region;
- c. **Quadrant III:** In overall, six areas are included in quadrant III, which are: East Java, Bali, Banten, Riau Province, Riau Islands and Jambi. Observed from its composition, it is divided equally among regions that are oriented to the mining sector since its inception, such as Riau Islands and Jambi provinces and regions that have started to divert

its priorities to non-mining sectors such as East Java, Bali and Banten provinces. This composition also illustrates the reasons on why each of them being included into quadrant III, which defined as a region that has great independence but its future economic potential is not very impressive. For Riau Province, Riau Islands and Jambi are associated with the contribution of the mining sector which has entered a period of decline in its operational life. Thing needs to be scrutinized is what happens in the Provinces of East Java, Bali and Banten, whether it is associated with the existence of regulations that do not support or excessive levies;

- d. **Quadrant IV:** the number of regions that being included into quadrant IV is relatively higher than other categories. Some of them such as North Sumatra, NTT, Southeast Sulawesi, Maluku, North Maluku and West Sumatra. The areas included in the IV quadrant are defined as areas with low independence and relatively poor economic outlook. The massive number of mining areas that are still in this quadrant IV shall inflict a serious note for the Central Government because it can be an early indication of the emergence of the phenomenon of the natural resource curse in Indonesia, especially when the mining sector did not give any impact for the region. This finding confirms prior recommendations for mining regions partially;

5. CONCLUSION

In some cases, natural resource curse phenomenon occurs in some regions or countries whenever the abundance of natural resources, especially the mining sector, has an impact on the welfare of the people. The phenomenon of natural resource curse is often known as Dutch Diseases when mining priorities cause other sectors development being hindered. Some people think this phenomenon arises because of poor economic performance, non-transparent governance as well as rampant social conflicts that arise related to the wealth of natural resources. The phenomenon of the natural resource curse certainly does not illustrate the pattern of sustainable development, this even strengthen the argument of massive extraction over the mineral industry that will deplete the reserves more quickly.

In case of Indonesia, several studies have been conducted to assess whether the resource curse also occurs, both at the national and regional levels. In general, all these studies conclude that regions in Indonesia do not experience the phenomenon of natural resource curse. Nevertheless, it can not be concluded that Indonesia is completely absent from this phenomenon because some preliminary findings indicate the need for caution. Especially in the era of fiscal decentralization, there are still many regions whose APBD is very dependent on the revenue of natural resource DBH. The amount of dependency on the mining sector even exceeds the contribution generated by PAD.

The role of the mining sector to the region in the era of fiscal decentralization then becomes an urgent need for analysis. The role will be differentiated based on the role of APBD performance both independence and future economic prospects and the role of the establishment of HDI (IPM) quality in the region. The mining sector will be viewed comprehensively by distinguishing the impacts based on the types of mining managed in the regions through the issuance of IUP. Therefore, expectantly it could generate a recommendation for the government in the economic management of the mining region in the future.

By using the method of share analysis as a proxy of independence in the region and growth analysis as a proxy of economic growth prospects, partially, the position of each region is observable based on the highest and lowest category. For the share analysis, the highest composition consists of East Kalimantan Province (76.76) followed by Riau Province (68.53), Riau Islands (59.52), South Sumatra (47.07) and South Kalimantan (46.23) during 2010 to 2016. The high share rates in these areas illustrate the magnitude of the contribution of the mining sector that creates the independence of the APBD. While the lowest category consists of NTT Province (11.9), Maluku Province (12.2), Sulbar Province (12.6), Papua Province (13.4) and Gorontalo Province that worth of 13.6.

From the distribution of the mining type perspective, in majority, the regions are having metal mine type. Only the province of East Kalimantan that are still relying on coal mines. While observed from the number of IUPs owned, the province of East Kalimantan has about 1,192 pieces of IUP while Riau Province and Riau Islands only have about 250 IUP, South Sumatra Province acquired as many as 1444 IUP and South Kalimantan Province amount of IUP almost reached 1799 coupled with South Kalimantan Province. Through this composition, it is seen that the high contribution of the mining sector is still due to the large number of IUP types managed by the regions. Considering the nature of non-renewable mines, mining areas should begin to think about promoting other non-mining sectors in order to achieve sustainable development in the region.

Meanwhile, from the analysis of growth, the highest composition is West Java (18.1), Central Sulawesi (15.6), West Papua (14.7), followed by Sulbar (13.9) and South Kalimantan (12, 6). In contrast, the mining area with the lowest category is Banten Province. This is due to the current province of Banten, has set aside the mining sector as secondary sector in the region, therefore it is widely expected that Banten is in the lowest position.

Based on the whole description before, it can be concluded that the curse of natural resources is not fully happening in Indonesia, due in some areas which have large fiscal capacity from oil and gas, they also have best HDI quality. However, it should be considered to immediately look for other economic growth alternatives resources from non-oil sector,

considering their current position is already in quadrant III.

6. IMPLICATION POLICY

From the result of partial analysis of share and growth, the areas consequently being analyzed by using quadrant method. Four areas are in the quadrant I which are Kaltim Province, South Sumatra Province, South Kalimantan Province and West Java Province. Consequently, the four regions have great regional independence as well as the potential for positive economic growth from the mining sector. Judging from the type of IUP managed, these four areas also represent different types of mining. Province of East Kalimantan and South Kalimantan is dominated by coal mining type, South Sumatra Province is dominated by metal mining, while West Java Province categorized into non-metallic and stone types.

Areas that are in the category of quadrant II include seven regions namely Central Sulawesi, West Papua, West Sulawesi, North Sulawesi, Babel, Kaltara and Central Kalimantan. The position in this quadrant II illustrates the condition of the region with the potential for positive economic growth, however, currently being constrained by low regional independence. Referring to the results of partial analysis, especially the value of share, the areas in the quadrant II are located in the middle-to-low category while its growth value is relatively positive. The low level of regional autonomy can be seen from two perspectives, either from the unoptimal contribution of the mining sector or the tremendous burden of APBD management. Comparing the effort to solve between the two, the efficiency and diversion of unproductive spending in the APBD, it seems easier to be done by the region;

In overall, six areas are included in quadrant III, which are East Java, Bali, Banten, Riau, Riau Islands and Jambi. Observed from its composition, it is divided equally among regions that are oriented to the mining sector since its inception, such as Riau Islands and Jambi provinces and regions that have started to divert its priorities to non-mining sectors such as East Java, Bali and Banten provinces. This composition also illustrates the reasons on why each of them being included into quadrant III, which defined as a region that has great independence but its future economic potential is not very impressive. Meanwhile, the number of regions that being included into quadrant IV is relatively higher than other categories. Some of them such as North Sumatra, NTT, Southeast Sulawesi, Maluku, North Maluku and West Sumatra. The areas included in the IV quadrant are defined as areas with low independence and relatively poor economic outlook. The massive number of mining areas that are still in this quadrant IV shall inflict a serious note for the Central Government because it can be an early indication of the emergence of the phenomenon of the natural resource curse in Indonesia, especially when the mining sector did not give any impact for the

region. This finding confirms prior recommendations for mining regions partially.

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APPENDIX

Table 1. Highest Share Value and HDI (IPM) in Mining Areas

No	Regional	2010	2011	2012	2013	2014	2015	2016	Average	Avg. IPM
1	Prov Kaltim	87,3	96,6	87,7	66,3	75,3	62,1	62,1	76,8	75,5
2	Prov Riau	90,4	85,2	77,5	62,4	75,3	44,7	44,3	68,5	74,2
3	Prov Kepri	80,1	62,7	70,4	59,0	54,5	48,7	41,2	59,5	75,0
4	Prov Sumsel	58,4	50,8	51,2	40,7	48,6	40,8	39,1	47,1	71,0
5	Prov Kalsel	37,3	51,5	52,3	62,9	42,9	40,4	36,2	46,2	69,7

Source: DJPK, Ministry of Finance, Processed data.

Table 2. Lowest Share Value and HDI (IPM) in Mining Areas

No	Region	2010	2011	2012	2013	2014	2015	2016	Avg.	Avg. IPM
1	Prov NTT	12,5	11,9	11,8	11,7	13,8	11,8	10,1	11,9	65,7
2	Prov Maluku	13,5	12,9	13,2	13,1	13,2	10,4	9,5	12,2	70,0
3	Prov Sulbar	12,5	11,8	12,8	11,1	12,8	10,5	16,8	12,6	67,2
4	Prov Papua	16,7	14,7	12,7	14,6	11,9	10,2	13,3	13,4	62,1
5	Prov Gorontalo	14,6	12,3	14,1	12,8	15,6	13,4	12,2	13,6	68,8

Source: DJPK, Ministry of Finance, Processed Data

Table 3. Highest Growth Value and HDI (IPM) in Mining Areas

No	Regional	2011	2012	2013	2014	2015	2016	Avg.	Avg. IPM
1	Prov Jabar	0,9	71,2	43,4	10,6	-7,8	-9,7	18,1	71,4
2	Prov Sulteng	2,4	0,6	0,2	7,0	-10,7	94,3	15,6	69,7
3	Prov Papua Barat	-14,3	-20,4	82,9	20,7	30,5	-11,2	14,7	66,4
4	Prov Sulbar	-5,1	8,1	-12,9	14,8	18,2	60,3	13,9	67,2
5	Prov Kalsel	38,2	1,5	20,3	31,8	-5,8	-10,4	12,6	69,7

Source: DJPK, Ministry of Finance, Processed Data

Table 4. Lowest Growth Value and HDI (IPM) in Mining Areas

No	Regional	2011	2012	2013	2014	2015	2016	Average	IPM
1	Prov NAD	-11,6	-26,2	30,5	-4,6	-23,9	-8,6	-7,4	71,1
2	Prov Sultra	-9,3	11,5	6,9	-7,2	-12,0	-21,7	-5,3	69,9
3	Prov Malut	-6,9	-3,7	-8,1	-7,8	1,1	-4,3	-4,9	68,1
4	Prov Sumut	1,2	-6,9	-3,7	-0,5	-6,4	-10,8	-4,5	72,6
5	Prov Banten	-3,4	1,6	3,3	-9,9	2,9	-13,2	-3,1	70,8

Source: DJPK, Ministry of Finance, Processed Data