

Oil Price Fluctuations and Regional Finance in Indonesia

Benedictus Raksaka Mahi, Ph.D.

*Senior Lecturer and
Head of Master Program of
Planning and Public Policy*

*Faculty of Economics
University of Indonesia
Republic of Indonesia*

Oil Price Fluctuations and Regional Finance in Indonesia¹

Abstract

With a fiscally decentralized Indonesian local governments and being cognizant that Oil Revenues is one of the major sources of its income, this paper dwells on the implications of Oil Revenue Sharing mechanism among the local governments of Indonesia and its effects to regional fiscal capacities. Having done more harm than good, this paper will offer evidences and mathematical analysis showing that the present Indonesia's Oil Revenue Sharing mechanisms increased regional development disparity rather than equalizing development, prevents optimal usage of the revenue, and is inelastic versus the spending demands. In the end, this paper recommends the insulation of the fiscal mechanism from politics, adjustments of the mechanism pertaining to the method of disbursements, and creation of a public spending plan to optimize the use of revenues.

Introduction

Indonesia adopted a decentralization policy since 2001. One important aspect of this policy is the decentralization of revenue from central government to regional governments. This policy is known as fiscal decentralization policy. Fiscal transfer from center to regions can have many possibilities; one of them is natural resource revenue sharing, including oil sharing. Under this policy, oil producing regions are entitled to receive their share from oil revenue.

Given the unpredictable nature of oil prices, this paper attempts to address the impact of oil prices on the budget of oil producing regions in Indonesia. There are three issues discussed in this paper:

The first issue relates to what extent the oil producing regions have utilized the revenue from oil productively for public spending. Given that large amount of money had been transferred to the regions since 2001; such question is worth to be studied.

Secondly, this paper also attempts to elaborate the impact of oil revenue sharing on fiscal equalization across the regions. Given that not many regions are endowed with oil, there is a concern that the allocation of oil revenue sharing could increase interregional disparity; measured in fiscal capacity across the regions.

Finally, a suspected late disbursement of oil revenue sharing to the regions has also significantly affected the spending patterns of the oil producing regions. What policy could have been implemented to avoid late disbursement?

The fluctuations of oil prices have already considered unpredictable for some years. Oil price fluctuations have raised uncertainties for some countries like Indonesia, which still allocates a significant amount of its budget to oil subsidies. As

shown in Table 1 of oil subsidies in Indonesia in 2006 and 2007. However, it showed an increase in 2008. Oil subsidies have accounted for approximately 16% to 19% of the government expenditure.

Table 1 Oil Subsidies: 2004–2008

(Unit: Million Rupiahs)

	2004	2005	2006	2007	2008
Oil Subsidies	69024.45	95661	64212.08	83792.32	187100
Government Expenditure	427176.7	509632.4	667128.8	757649.9	989500
% of oil subsidies to Government Expenditure	16.16	18.77	9.63	11.06	18.91

Source: Calculated from Ministry of Finance Data.

The discussion of the paper will start with a discussion on arguments for natural resource revenue sharing. It will be followed by a discussion on the current practice of oil revenue sharing in Indonesia. Next, impacts of oil price fluctuations on central and regional budgets will be discussed. Finally, this paper will also recommend some policy options that could be adopted by the government in order to solve the problems.

Arguments for Natural Resource Revenue Sharing

After fiscal decentralization, Indonesia had been facing with the problems of struggle for control over the use of natural resources — with a continued tension between demands from producing regions for an increase share of the resources and calls for redistribution from all other poor regions through the allocation of general purpose grant (DAU).

Natural resources are concentrated only on some regions in Indonesia. The concentration of oil and gas resources, for example, can be found mainly in the provinces of Nanggroe Aceh Darussalam (NAD), Riau, West Java and East Kalimantan. Table 2 describes the concentration of oil and gas resources in Indonesia for some years.

The growth of oil and gas resources in major producing provinces is not stable during the period of 1996 to 2003. As described by Table 2, the growth of oil and gas resources in NAD has been steadily decreasing from 1996 to 2002, but slightly recovered in 2003. The same condition applies to East Kalimantan, however, the province recovered from production in 2002. Riau had a relatively stable growth at 3.4 percent in 2002 and 2003. West Java has a decreasing trend on the production of oil and gas from 1996 to 2003.

Basically, the Law No. 33/2004 on Central-Regional Fiscal Balance has outlined the design of intergovernmental fiscal relations, which played a crucial role in this respect. A comprehensive revenue assignment instruments had been developed to support fiscal decentralization in Indonesia. The summary of the policy can be found in Table 3.

Table 2 The Growth and Concentration of Oil and Gas Resources: 1996–2003

No.	Province	Growth				2003	
		1996	1998	2001	2002	Growth	Proportion
1	Nanggroe Aceh Darussalam	−3.59%	−19.05%	0.40%	−6.16%	1.70%	7.20%
2	Bangka Belitung	—	—	—	—	—	—
3	Bengkulu	—	—	—	—	—	—
4	Jambi	30.81%	90.84%	30.20%	−4.81%	−0.98%	1.46%
5	Lampung	—	—	—	129.10%	9.98%	0.71%
6	Riau	3.07%	−6.60%	3.53%	3.49%	3.48%	48.48%
7	South Sumatra	4.07%	8.69%	10.80%	0.98%	1.58%	5.78%
8	West Sumatra	—	—	—	—	—	—
9	North Sumatra	−1.89%	−6.02%	−20.28%	−3.49%	−2.98%	0.46%
10	Banten	—	—	—	—	—	—
11	Central Java	24.44%	−40.24%	14.45%	7.55%	−7.20%	0.12%
12	East Java	113.53%	54.84%	−58.71%	−9.19%	1.79%	0.25%
13	West Java	2.07%	−1.49%	−6.46%	−4.73%	−4.09%	11.60%
14	DKI Jakarta	—	—	—	—	—	—
15	DI Yogyakarta	—	—	—	—	—	—
16	Central Kalimantan	—	—	—	—	—	—
17	East Kalimantan	1.68%	−1.67%	0.74%	5.41%	1.72%	22.66%
18	South Kalimantan	16.04%	148.20%	−3.74%	3.16%	−3.25%	0.35%
19	West Kalimantan	—	—	—	—	—	—
20	Central Sulawesi	—	—	—	—	—	—
21	South Sulawesi	—	—	6.18%	4.23%	0.88%	0.16%
22	South-East Sulawesi	—	—	—	—	—	—
23	North Sulawesi	—	—	—	—	—	—
24	Gorontalo	—	—	—	—	—	—
25	Bali	—	—	—	—	—	—
26	East Nusa Tenggara	—	—	—	—	—	—
27	West Nusa Tenggara	—	—	—	—	—	—
28	Maluku	5.23%	0.15%	8.68%	2.36%	2.82%	0.03%
29	North Maluku	—	—	—	—	—	—
30	Papua	−5.67%	9.56%	−5.19%	0.93%	5.35%	0.75%

Source: Calculated by the Author from CEIC Database.

As described in Table 3, oil revenue sharing is a part of shared revenue scheme.

The arguments for sharing natural resource revenue with regions are often based on political notions of fairness, and are almost emotionally charged. Bahl *et al.* (2004) mentioned at least four objective arguments that could support giving regional governments a claim on these revenues.

Table 3 Revenue Assignment Policy in Indonesia

Revenue Categories	Description	Examples
Regional Own Taxes	Tax Base and tax rates under the regional control.	<ul style="list-style-type: none"> • Vehicles tax (province) • Taxes on Hotel and restaurants (municipality/regency)
Regional Own User charges	The base and rates are determined by the regional control. Most of user charges are collected based on the service provided to the people.	Bus terminal fee, health fee (municipality/regency)
Overlapping taxes	Nationwide tax base, but rates under regional control.	Property tax
Shared revenue	Nationwide base and rates, but with a fixed proportion of the revenue (on a tax-by-tax basis or on the basis of a "pool" of different tax sources) being allocated to the regional government based on (1) percentages amount of revenue accruing within each jurisdiction (also called the derivation principle or revenue sharing) or (2) other criteria, typically population, expenditure needs, and/or tax capacity.	<ul style="list-style-type: none"> • Personal Income Tax • Natural resource revenues; including oil
General purpose grant	regional government share is fixed by central government (usually with a redistributive element), but the former is free to determine how the grant should be spent. Under the fiscal gap concept adopted by Indonesia, the amounts received by individual authorities depend on fiscal capacity and fiscal needs.	General purpose grant (known as "Dana Alokasi Umum (DAU)")
Specific grant	The absolute amount of the grant may be determined by central government and central government also specifies the expenditure programs for which the funds should be spent.	Specific grant (known as "Dana Alokasi Khusus" (DAK))

1. The Heritage Argument

Natural resources are considered as heritage of the region. This argument has gained support from McClure (1994) saying; "sub national governments have argued strongly that they may have the right to tax natural resources located within their boundaries, to convert resource wealth (their "heritage") into financial capital – to turn "oil in the ground into money in the bank".

According to the data obtained from Center of Energy Information, Ministry of Natural Resource and Energy, the oil reserve estimated in 2003 was 8.8 billion barrels; of which 4.7 billion barrel is the proven reserve, while 4.1 billion is the potential

reserve. With the refinery production of 1.1 million barrel per day, it is estimated that the reserve would be exhausted within the next 16 years.

Oil resources are definitely exhaustible. Oil producing regions can have the share of the oil only over the finite life of the resource. In theory, the benefits of the resources should accrue to present and future residents. However, the current system of oil revenue sharing in Indonesia all but guarantees that there will be no inter-generational transfer. In his paper, Bahl suggests that to manage the “wind-fall” from oil revenue (and also natural resource in general), there should be a creation of a Heritage Fund as the central mechanism for administering natural resource revenue sharing.

Cost of Reimbursement

Natural resource extraction and processing can be “a dirty business” imposing both high social costs and high infrastructure costs. Oil drilling and processing can pollute the environment and impose social costs as well as clean-up costs on the community.

There is also an infrastructure cost. Infrastructures such as roads, railways and ports might be termed as economic infrastructure because it relates directly to economic activity. Infrastructures such as schools, health facilities, etc for people might be termed as social infrastructure as it relates more directly to the needs of society and only indirectly to the economic activity. As Searle (2004) mentioned, the first company to commence extraction in the area might put in the economic (and even the social) infrastructure at its own expense. The company may retain the ownership of economic infrastructure, but it could pass ownership of the social infrastructure to the regional government. If this happened, there should be some costs of maintaining the activity incurred by the regional government.

Rationalizing the Revenue Structure

Indonesia is decentralizing and regional governments are taking on new expenditure responsibilities and looking for new revenue opportunities. Bahl stated that giving the regions a share from natural resource revenue, by some transparent formulae, would prevent them from looking for “back door” approaches. These “Back door” approaches can be quite harmful to economic development by discouraging investors and can drive up transaction costs. Oil sharing can help regional governments in raising revenue for financing the decentralized expenditures.

Politics and National Unity

Regions endowed with large natural resources in Indonesia usually argue that for almost 30 years they had never enjoyed direct benefit from their own-natural resources. Therefore, decentralization was seen by them as their opportunity to claim a better revenue sharing. This political nuance is one of the arguments usually proposed by natural resources producing regions to obtain share of the revenues.

Indonesian Scheme for Oil Revenue Sharing

Indonesia established a sharing mechanism between central and natural resource-producing regions. The basic sharing mechanism has been written in the law. *Alisjahbana* (2005, page 112–113) outlined the summary of natural resources sharing before and after decentralization. It is clear that before decentralization, oil and natural gas were not shared between central and regional government.

Following decentralization, general allocation between central and oil producing-regions follows a rule (see Table 4) that central government is entitled to 85% of oil revenue while the rest (15%) is allocated to regional governments; including provincial and district governments.

Table 4 Oil Revenue Sharing in Indonesia

Oil Revenue Sharing	Central	Province	District Producer	Non-producer Districts
The Percentages of Allocation	85	3	6	6

Source: Articles from Law No. 25/1999 and Law No. 33/2004.

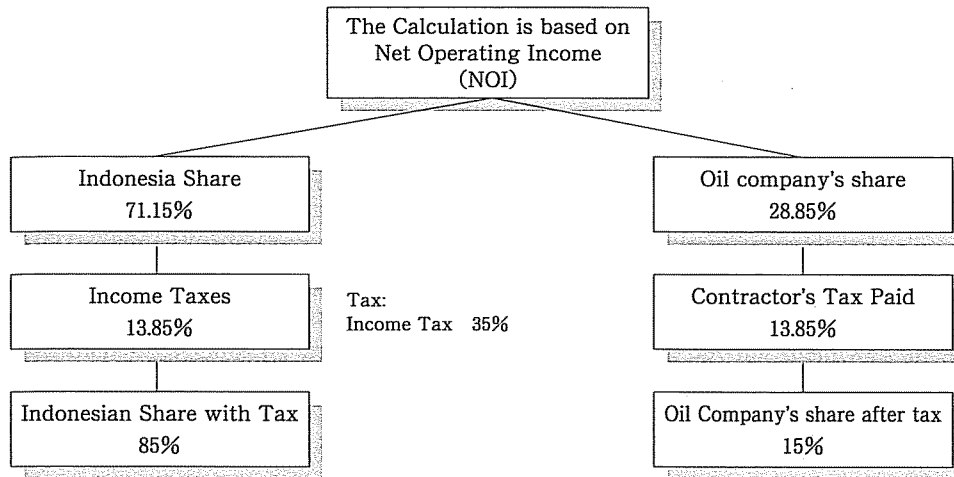
From the regional share of 15%, the oil-producing regions receive the largest part (6%), while province of which the producing regions reside receives 3%, and non-producing regions also receive a part (6%). The amount of 6% for non-producing regions is equally distributed among themselves. If the number of non-producing regions in the province is larger, the amount allocated to each of them becomes smaller. Table 4 above does not discuss the allocation scheme for special autonomy regions of Aceh and Papua, which are regulated under a different law.

There are always questions raised on what are supposed to be shared with the regions, specifically regarding oil revenues as defined by the law. If one has to read the law carefully, there is no clear answer on this issue. However, the study conducted by LPEM-FEUI and NRM in 2000, found clarification about the revenue to be shared between central and regional governments. Figure 1 depicts the oil revenue base for revenue sharing between central government and oil producing regions.

The base for calculating oil revenue sharing is Net Operating Income (NOI), defined as Revenue after deducting the operating expenses. At first, the Indonesian government and the oil producing company has to divide the NOI based on the production sharing agreement.

Figure 1 shows that revenues obtained by central government consists of oil revenue share and corporate income taxes. Oil revenue share itself is approximately 71.15% of the NOI. The income tax earned by the government is calculated as 13.85% of the NOI. Both shares for Indonesian government accounted for 85% of net operating income (NOI). On the other hand, total share for oil companies is approximately 15% of the NOI; calculated as a net of tax amount.

The revenues shared with oil producing regions is based on non-tax compo-

Figure 1 Determination of Revenue Base for Oil Sharing

Indonesia Share: 85% of the Net Operating Income (NOI). Those include:

- a. Tax Components and Retentions (approximately): 31.6%
 1. Regional Taxes (Property tax): 12.75%
 2. Income Tax: 13.85%
 3. Pertamina Retention: 5%
- b. Non-Tax Components (approximately) : 53.4%, of which:
 1. Regional Government Share (Total=15%) : 8.01%
 2. Central Government Share : 45.39%

Source: LPEM-FEUI and NRM Study on Natural Resource Sharing, 2000.

nents. This is calculated by deducting central government revenue shares with all taxes; including national (income tax), regional taxes (property tax), and the Pertamina retention (fee). Those tax deduction components account for approximately 31.6% of net operating income.

The amount of non-tax components is approximately 53.4% of net operating income. This becomes the revenue base for calculating the oil revenue sharing between central government and oil producing regions. When applying the total regional share of 15% to non-tax component, we could obtain the share of oil producing regions at about 8% of net operating income.

Each year, the Ministry of Natural Resource and Energy determines who are the oil producing regions and calculates oil production and oil revenue sharing for the region based on the report from oil companies. Once calculated, it is reported to the Ministry of Finance, which then issues a decree showing the allocated amount of oil sharing for each oil producing region.

Forty-seven districts in 13 provinces are identified as oil producing regions. The ten largest oil producing districts based on their oil revenue shares are reported in Table 5:

The role of oil revenue shares itself as a source of district revenue in the oil producing districts has been decreasing since 2001. It is shown by comparing the average oil revenue share with other revenue categories as follow:

Table 5 Ten Largest Districts based on Oil Revenue Shares, 2008

No.	Districts and provinces	Oil Revenue Sharing (Rupiah)
1	Bengkalis, Riau	1,535,434,546,000
2	Siak, Riau	888,715,014,000
3	Rokan Hilir, Riau	841,825,617,000
4	Kampar, Riau	602,021,736,000
5	Kutai Kartanegara, East Kalimantan	523,569,437,000
6	Rokan Hulu, Riau	309,045,858,000
7	Palalawan, Riau	304,075,556,000
8	Indragiri Hulu, Riau	302,117,376,000
9	Kuantan Singingi, Riau	298,952,356,000
10	Dumai, Riau	298,952,356,000

Source: Minister of Finance Decree on Oil Revenue Sharing.

Table 6 Average Oil Revenue Share as a Percentage of Other Revenue Sources

Year	As a percentage of Total Revenue	As a percentage of General Purpose Grant ("DAU")	As a percentage of Own-Source Revenue ("PAD")
2001	8.48 %	10.61%	119.96%
2002	6.65%	9.42%	79.99%
2003	5.09%	7.25%	62.15%
2004	5.11%	10.49%	45.72%
2005	5.14%	11.59%	24.04%
2006	5.23%	11.64%	27.38%
2007	6.05%	11.76%	31.28%
2008	5.59%	10.93%	28.86%

Source: Calculated from Realization of Regional Budget Data.

Table 6 above indicates that, since the implementation of decentralization in 2001, the role of oil revenue shares as the source of revenue for district governments, on the average, has been decreasing. In comparison with the average own-revenue ("PAD"), the contribution of oil revenue shares in 2008 was approximately 28.86%; a decrease of its role by 120% of the PAD in 2001. There are two possible reasons explaining this event. First, the oil producing regions might have benefited from other increasing revenue sources; particularly from their own-local tax ("PAD"). Second, the revenue from oil itself has been decreasing, as the production of Indonesian oil has been decreasing steadily from 2001.

Oil Price Impacts on Regional Budgets

Given the fluctuations of oil prices, there are questions on what implications it

could have to the revenue stream, hence the spending behavior, of regional governments producing oil? We acknowledge at least three areas to be discussed in relation to the implication of oil price fluctuations:

- Interregional Disparity
- Issues of Late Disbursement of Natural Resource Sharing
- Regional Government Spending Behavior

Interregional Disparity

The issue of increasing disparity on regional fiscal capacity has been the concern of economists. Alisjahbana (2005) found that regions rich in oil and gas had seen their fiscal capacity per capita jump almost four-fold, putting them well ahead of non-oil/gas producing regions. She also found that natural resource revenue sharing had increased the disparity on the interregional fiscal capacity when compared to the condition before and after decentralization. This paper also confirms Alisjahbana findings that oil resource sharing itself has contributed to the increase of fiscal disparity across region. The variation in revenue per capita of districts is reported in Table 7.

Table 7 reports the calculation of coefficient variation for districts revenue before decentralization (2000) and after decentralization (2002). As depicted in Table 7, natural resource sharing in the decentralization era (2000) contributed to an increase in the coefficient variation. Without natural resource sharing, the coefficient variation based on own-source revenue is 0.728. After adding natural resource sharing, the coefficient increased to 2.387, indicating a worsening in fiscal disparity across regions. When adding only oil revenue sharing, the coefficient also increased to 1.124, indicating that oil revenue sharing itself contributes to an increase in fiscal disparity across regions.

Besides the oil revenue sharing problems, there is an interesting observation

Table 7 Variation in Revenue per capita of districts, 2000 and 2002

Source of Revenue	Coefficient of Variation
Before Decentralization (2000):	
Own-source revenue	2.491
+ Natural Resource Sharing	1.362
After Decentralization (2002):	
Own-source revenue	0.728
+ Natural Resource Sharing	2.387
+ Oil Resource Sharing*	1.124

Source: Alisjahbana (2005).

Notes: * Author's own-calculation.

related to the decrease of coefficient variation for regional own-revenue ("PAD"). Before decentralization, the coefficient value is 2.491, and after decentralization, the coefficient value is 0.728. This indicates that, before decentralization, there is a larger disparity on PAD across regions compared to the condition after decentralization. We could argue that this could come from the implementation of Law No. 34/2000 on Regional Taxes and User Charges, which gave a better opportunity for regional government to create and produce new local taxes and user charges, and to improve their local tax administration. We could argue also that this could result from a better leadership of new head of districts ("Bupati" or "Walikota") in managing their regions. A further study is needed to elaborate and justify this argument.

Issues of Late Disbursement of Natural Resource Sharing

The biggest problem in relation to natural resource revenue sharing lies in the disbursements of the fund. In principle, each 25 percent of the regional shares should be released in the second (April) and third (July) quarters, and the remaining 50 percent in the last quarter (October and December). However, in 2001, actual disbursements were conducted mostly at the third and the fourth quarters of the fiscal year. In particular, forestry related revenues for FY 2001 were allocated in FY 2002.

A major reason of this delay came from difficulties in collecting required production data of natural resources. It took unexpectedly long time to collect these data at the technical ministry level, which inevitably resulted in delayed release of Ministerial Decrees for the natural resource sharing by MOF. Table 8, taken from the study conducted by JBIC and LPEM FEUI, reports quarterly disbursement amounts of sharing revenue in the early year of fiscal decentralization (FY 2001). It

Table 8 Quarterly Disbursements of Sharing Revenues (Unit: Rp. billion)

	FY 2001				Total
	Q1	Q2	Q3	Q4	
Revenue Sharing					
Personal Income Tax (PPH)	20.2	788.9	1,022.0	1,462.2	3,293.3
Property-related Taxes					
Land and Building Tax (PBB)	510.0	353.2	1,948.9	2,137.3	4,949.4
Duties Land and Building Transfer (BPHTB)	246.0	326.9	382.5	501.3	1,456.6
Natural Resources (SDA)					
Oil	0.0	0.0	2,974.6	3,015.3	5,989.9
Gas	0.0	0.0	1,678.5	1,903.8	3,582.3
General Mining	0.0	0.0	0.0	438.0	438.0
Forestry	0.0	0.0	0.0	318.2	318.2
Fishery	—	—	—	—	—
Total	776.2	1,469.0	8,006.5	9,776.1	20,027.8
(%)	3.9	7.3	40.0	48.8	100.0

Source: LPEM-FEUI and JBIC Study on Regional Expenditure, 2002.

shows that a major part of natural resource sharing was mainly disbursed in the third and fourth quarter of the budget year. As a result, a majority of natural resources producing regions carried over a major part of their sharing revenues into the FY 2002 budgets, which is one of factors explaining budget surpluses in some regions.

The late disbursement of natural resource shares is still a big problem in recent years. This definitely affected regional government spending in the regions. One could expect that in the case of increasing oil prices, oil producing regions could not take advantage of this optimally as they still receive the late disbursement of the oil sharing from the central government.

A significant delay on the disbursement of money to regions could create significant cost to the regional governments. First, regional governments need to find other sources of revenue to finance their obligatory expenditures. In some cases, these were done by shifting block grant fund (DAU)² from financing current expenses, such as salaries, to paying the project costs of developers. This could result in a lack of money for financing current expenses as experienced by some oil producing regions. Second, regional governments could do borrowings. However, the practice of borrowings under the new law has been limited only to borrowing from central government. Regional government could borrow from abroad but the procedures require them to borrow through the central government using two-step loan mechanism.

Regional Government Spending Behavior

There have been always questions regarding to what extent the revenue from oil sharing is spent on public spending by regional governments. This paper attempts to elaborate the impact of oil revenue sharing on some public expenditure components, such as education and health, both for provinces and districts producing oil.

The following are the characteristics of the model:

1. The model adopts the logarithmic function in order to obtain the elasticity of a particular expenditure component on oil revenue sharing.
2. This model utilizing dummy variable to distinguish between the districts that directly benefiting from the oil sharing (the oil producing districts) and those which indirectly benefiting from the oil sharing (other districts not producing oil but reside within the same province with the oil producing districts).

There are three equations to be estimated for districts, which can be written as follows:

$$\ln G_i = \alpha_1 \cdot \ln OIL_i + \alpha_2 \cdot D_i + \varepsilon_i \dots\dots\dots (1)$$

$$\ln EDU_i = \alpha_1 \cdot \ln OIL_i + \alpha_2 \cdot D_i + \varepsilon_i \dots\dots\dots (2)$$

$$\ln HEALTH_i = \alpha_1 \cdot \ln OIL_i + \alpha_2 \cdot D_i + \varepsilon_i \dots\dots\dots (3)$$

G_i is a per capita total expenditure of the district i . EDU_i is a per capita education expenditure of district i . $HEALTH_i$ is the per capita health expenditure of district i , OIL_i is the oil sharing received by district i , and D_i is the dummy variable for non-oil producing districts in the province.

There are three equations to be estimated for province, which can be written as follows:

$$\ln G_i = \alpha_1 \cdot \ln OIL_i + \varepsilon_i \dots\dots\dots (4)$$

$$\ln EDU_i = \alpha_1 \cdot \ln OIL_i + \varepsilon_i \dots\dots\dots (5)$$

$$\ln HEALTH_i = \alpha_1 \cdot \ln OIL_i + \varepsilon_i \dots\dots\dots (6)$$

G_i is a per capita total expenditure of province i . EDU_i is a per capita education expenditure of province i . $HEALTH_i$ is the per capita health expenditure of province i . OIL_i is the oil sharing received by province i .

The data utilized for estimating the model are utilized to realize the regional budgets. Data of 12 provinces and 197 districts are used to identify the oil revenue shares. A pool time series cross-section data are used to estimate the model for the period of 2001–2003. The estimated equations are reflected in Table 9.

Table 9 The Model Estimation Results

The Estimated Equations for Districts:

$$\ln G_i = 0.14 \cdot \ln OIL_i + 7.27 \cdot D_i + \varepsilon_i \dots\dots\dots (1)$$

(15.64) (109.71)

R-Squared = 0.284

$$\ln EDU_i = 0.24 \cdot \ln OIL_i + 4.31 \cdot D_i + \varepsilon_i \dots\dots\dots (2)$$

(17.45) (44.15)

R-Squared = 0.33

$$\ln HEALTH_i = 0.21 \cdot \ln OIL_i + 3.61 \cdot D_i + \varepsilon_i \dots\dots\dots (3)$$

(15.18) (36.78)

R-Squared = 0.27

The Estimated Equations for Provinces:

$$\ln G_i = 0.13 \cdot \ln OIL_i + \varepsilon_i \dots\dots\dots (4)$$

(22.82)

R-Squared = 0.99

$$\ln EDU_i = 0.24 \cdot \ln OIL_i + \varepsilon_i \dots\dots\dots (5)$$

(10.29)

R-Squared = 0.79

$$\ln HEALTH_i = 0.21 \cdot \ln OIL_i + \varepsilon_i \dots\dots\dots (6)$$

(20.2)

R-Squared = 0.87

Both for the provinces and districts, the regression results show that oil revenue sharing have a significant impact on regional government expenditures. However, from the coefficients of the estimated equations defined as the elasticity of oil revenue sharing on regional spending, the values are below one. The results of the elasticity values indicate that oil revenue sharing are not yet a buoyant resource to finance public spending.

Policy Discussions

Given the impacts of the oil fluctuations on central and government budgets, some policy options could be considered to resolve the problems.

Making Fiscal Equalization Happens

The issue of increased interregional fiscal disparity from oil revenue sharing, or natural resource revenue sharing in general, has been understood by the economists and the government of Indonesia from the beginning of the regional autonomy implementation. Understanding the problem, the fiscal decentralization policy has adopted a fiscal equalization instrument through the allocation of general purpose grant ("DAU").

The basic formula of DAU allocation is based on "the fiscal gap" concept. It is defined as the difference between the fiscal need and the fiscal capacity of the region. The determination of fiscal need, as stated in the law, depends on some explanatory variables. In Law No. 33/2004, the fiscal need variables consist of population, area, construction index, and human development index (HDI). On the other hand, the fiscal capacity is defined as the summation of own-source revenue and shared-revenues. The weights are calculated based on the calculation of fiscal gap values across the regions. Those weights are used to allocate the general purpose grant of DAU.

The law suggests that regions with a very high revenues from either own-source and or shared-revenue could have values of fiscal gap equal to zero or negatives, indicating those regions do not need the allocation of DAU. Of course there are still chances of oil producing regions to receive the DAU. This case happens when the region also has higher fiscal need compared to its fiscal capacity or if the revenue from oil is not significant enough to finance the region's fiscal need. Such regions, for example, could be found in West Java Province.

Basically, when allocating DAU, it is supposed to apply fully (100%) the formula; other things, such as political decision, should not be in the consideration. However, when allocating the DAU in 2001, the use of formula was only 20%, while the rest of 80% was affected by political decision, known as "hold-harmless" condition. Based on this (political) decision, a region which received the transfer in the past was still entitled to receive the DAU.

Based on the Law No. 33/2004, there is a strong mandate for the government to purely adopt the fiscal gap concept by 2008. We could hope that if this formula is fully implemented, there would be a significant reduction on interregional fiscal

disparity across the regions.

Making Disbursement on Time

Understanding the impacts of late disbursements on regional spending, the only answer to this problem is how to avoid the delay. Actually, the government already committed to disburse quarterly the money from natural resource revenue sharing to the regions. Unfortunately, there was always a problem related with this regular disbursement. One of the problem is price fluctuations of natural resource commodities itself. To cope with this problem, there should be some adjustments on the method of disbursement of resource revenue sharing.

To reduce the late disbursement of natural resource revenue sharing, the government should allocate every quarter about 1/4 of the total budgeted amount to resource producing provinces and districts. This can be done regularly for the first three quarters. If there is any adjustment to the budgeted amount as a result of external factors (such as price fluctuations), this adjustment could be accommodated in the disbursement of the last quarter based on the revised budget figures (APBN-P) or the actual natural resource revenue for that year.

This option could help regional governments to get some certainties in the flow of natural resource revenue sharing at least for the first three quarters. The last quarter disbursement would be adjusted depending on the fluctuations of prices and other external factors. The last quarter disbursement could be a large gain for natural resource producing regions if actual total natural resource revenue of the government increases for that budget year. It could be a decrease for the other regions when the actual revenue from natural resource decreases for that year. However, this adjustment of the money will only occur in the last quarter, while in the first three quarters, a regular flow of transfer from the central government could help improve spending plan for the regions.

Making Public Spending Increases in the Oil Regions

There should be a better regional public expenditure planning to optimize oil revenue sharing for basic public spending; especially for education and health. There are actually some fiscal instruments available for the government to redirect regional government expenditure for public spending. One of the option is to implement consistently the policy as stated in the Law No.33/2004 by increasing the regional shares from natural resource for additional 0.05% on top of current shares as long as the additional allocations are used for spending on education. This is an earmarking scheme of grant, which could be extended to cover other public spending.

This policy option suggests that central government should stimulate the spending behavior by implementing an earmark public funding from natural resource revenue sharing.

Conclusions

Oil price increases could increase interregional disparity across the regions. Studies show that increased interregional fiscal disparity is caused by unequal transfer allocation to non-producing regions in the country. While regions endowed with natural resources receive more revenues from their shares, they are at the same time still receiving significant amount of general purpose grant ("DAU"). The policy discussed in this paper suggests that the government need to fully implement the "fiscal gap" formula for allocating DAU, hence, some oil producing regions, which have received a significant amount of oil revenue sharing, would no longer receive the block grant DAU. This option could reduce interregional disparity across the regions.

Late disbursement of natural resource revenue sharing, including oil sharing, have a tremendous impact on the regional expenditure planning. The policy option addressed to cope with this problem is by improving the disbursement mechanism of natural resource sharing. A subtle discipline mechanism is here to proposed through quarterly disbursment of the amount of money to the regions based on the budgeted figures for the first three quarters. Any adjustment on the budget as a result from the oil price changes can further be adopted in the last quarter disbursement to the regions.

Finally, the issue of better regional spending behavior, which means a larger portion of regional budget allocated to basic service and other public spending from oil revenue, has also been the concern of this paper. Given the large amount of oil sharing allocated to some regions; such as Riau and East Kalimantan, an indirect intervention to regional budget is needed. This could be done by implementing an earmarked allocation out of the oil revenue sharing for developing a certain public service, such as health and education.

Notes

- 1 The author would like to thank Dr. Chris Manning, Dr. Ross McLeod, Dr. Hal Hil and Dr. Budy Resosudarmo (ANU) for their valuable comments and suggestions on the earlier draft of this paper.
- 2 The disbursement of DAU is in a monthly basis. So far, the DAU disbursement is known to be on time, and considered to be the most certain revenue resource for regional governments. This could help some regions, which have a high reliance to central transfer, to finance expenditures.

References

- Alisjahbana, Armida S. Does Indonesia have the Balance Right in Natural Resource Revenue Sharing?, in Budy P. Resosudarmo (Eds.), *The Politics and Economics of Indonesia's Natural Resources*, ISEAS, 2005.
- Ahmad, Ehtisham, and Raju Singh, *Political Economy of Oil Revenue-Sharing in A Developing Country: Illustrations from Nigeria*, May 2002.
- Bahl, Roy and Bayar Tummenasan, *How Should Revenues From Natural Resources Be Shared in Indonesia?* Working Paper 02-14, May 2002, Andrew Young School of Policy Studies,

- Georgia State University.
- Searle, Bob, *Revenue Sharing, Natural Resources and Fiscal Equalization*, Working Paper 04-16, November 2002, Andrew Young School of Policy Studies, Georgia State University.
- Clark, Allen L., *Government Decentralization and Resource Rent Revenue Sharing: Issues and Policies*, Occasional Papers, Economic Series, No. 1, November 1999, East-West Center.
- Herbst Jeffrey, *The Politics of Revenue Sharing in Resource-Dependent States*, Discussion Paper No. 2001/43, United Nations University.
- LPEM-FEUI and NRM, *The Study on Natural Resource Revenue Sharing in Indonesia*, Unpublished Report, 2000.