Does Soft Corruption Make Grease or Sand for Development? Evidence from Road's Special Allocation Fund for Indonesian Districts

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Abstract

Under a question whether corruption acts as grease or sand for development, this paper estimates the effect of special allocation fund (SAF) or DAK in road sector to infrastructure provision (road) at the district level in Indonesia. The political fragmentation and its political earmarking, defined as the effective number of central parliamentary members from a district are used as an instrumental variable (IV) for the amount of SAF in each district combined with a difference-in-difference measure for the rural road. Such empirical strategy is adopted to tackle three endogeneity problems: selection bias, measurement error and reverse causality between SAF allocation and rural road. First I find that the influence of political earmark is statistically significant than the formula-based approach. Second, under the influence of political earmarking, the IV result shows that the SAF allocation does not affect a rural-road provision in Indonesia in the early implementation of fiscal decentralisation. It seems that allocation based on the block grant or general allocation fund is having more clear effect in the presence of earmarking of special allocation fund. This also indicates the way of pork-barreling politics acts as the 'sand' of SAF allocation in road sector, especially in a year before general election in Indonesia.

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1 Introduction

An important debate in economic development that still gives a strong research motivation is whether corruptions greases or sands the wheels of economic growth (Campos et al., 2010). Indonesia, one of developing nation which experienced a big bang approach to reform the economy and escape from heavy corruption to a more transparent and efficient economy is an interesting case study in the area. Specifically, after the departure of Soeharto in 1998, the system has been replaced by a more fragmented system that leads to the circumstance that Indonesian corruption has become more unpredictable (Resosudarmo and Kuncoro, 2006). This paper aims to fill in the gap by focusing on the soft corruption case.

Those in favour of the sands hypothesis had tried to explain what works and what does not to fight explicit or hard corruption using micro experiment approach at Indonesian context. These studies include Olken (2006, 2007, 2010) and Alatas et al. (2013, 2012). Alatas et al. (2013, 2012) provide evidence whether elite capture exists on the allocation of household targeted government programs in Indonesia. They did not find elite capture in the allocation of the program and favour of community targeting. Olken (2006) used data from a large transfer program in Indonesia to investigate the extent of corruption. He found that corruption is substantial; the central estimate is that at least 18% of the subsidised rice in the Indonesian program he studied went missing. Having two competing of traditional top-down monitoring and community participation interventions, Olken (2007) found that the former had a larger average impact than the latter using experimental data of road construction cost in Indonesia. Lastly, Olken (2010) finds the superiority of direct participation in the representative-based meeting in determining development project.

On the other hand, there has been a limited study that focused on soft corruption such as the misuse of public fund for private benefit but is considered legal in the system. The most recent study in road infrastructure provision in Indonesia Kuncoro et al. (2013). The authors focus on the varieties of governance of public goods (road) delivery in Indonesia in the period of before and after the decentralisation and focus on the downstream side of the project implementation. We acknowledge it as explicit corruption.

In 2001, Indonesian government formally reformed the institutional arrangement of central-local relationship. It was a big-bang reform of intergovernmental level relationship accompanied by a major reform of fiscal relationship between central and local. Since then, the fiscal relationship had been strongly decentralised especially regarding revenue. An emerging issue within such new arrangement is pork-barrel programs, an advocated and self-interest biased resource allocation because of constituencies advocating policy (Veiga and Veiga, 2013).

One of the fiscal instrument introduced was special allocation fund (SAF) as an earmarked type of fiscal transfer to ensure the catch-up progress of some sectors in some specific regions. The use of earmarking fund is arguably the best instrument as it guarantees the fund meet the priority agenda of development whenever the earmarking criteria and process is objective and transparent. Indeed, the SAF in Indonesia was designed as formula based fiscal transfer to become an efficient intergovernmental transfer instrument.

However, there has been a period of lack of readiness in the implementation that put the system at risk of pork-barreling politics. That was in 2003 at the time when the formula based implementation did not take place yet. Furthermore, the year was a year before the general election. A time for a high probability for an incumbent parliamentary member to practice utilisation of government funds for projects designed to please voters or legislators and win votes, in which we refer to as pork-barreling politics or political earmarking.

This paper aims to investigate the impact of introducing specific fund transfer to the economic development in Indonesia under the hypothesis that the allocation is affected by political earmarking. We focus on the variation of districts level in SAF allocation in road

Figure 1: Political Fragmentation and Rural Road
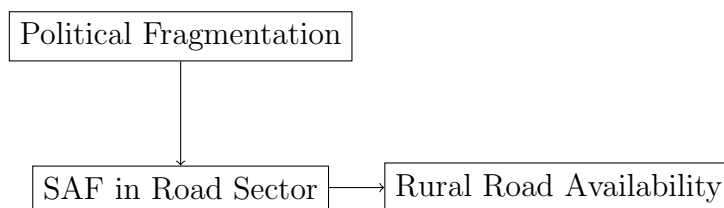
sector and the public good provision (road) to estimate the causal impact of introducing the SAF on rural accessibility. The first objective is to answer a question whether there was a soft corruption in the form of political earmarking in the allocation of special allocation fund in the road sector in Indonesia in 2003. The subsequent important task is to answer whether the impact of the allocation to rural road availability is significant in rural area[1].

2   Conceptual Framework

The system of intergovernmental transfer in Indonesia represents one of the most complex systems ever implemented by any government in the world. The system is primarily focused on a gap filling approach to provincial-local finance in an objective manner to ensure revenue adequacy and local autonomy but without accountability to residents for service delivery performance (Shah et al., 2012). The complexity of the system is also reflected in the SAF allocation. The SAF is a fund that transferred from central to local government for public good provisions that are considered become a national priority from national level perspective. The allocation is made using a set of objective criteria and formula based approach to ensure that the region who receive the fund is the region with a sector that is prioritised. The decentralisation law for implementing the transfer was enacted in 2000, yet the formula had been ready only in 2003. Therefore, up to 2003, the allocation of SAF is discretion based and strongly opened possibility for local entities to practice what so called pork-barrel politics.

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[1]Although the SAF was not designed for the rural road. Indeed the majority of the project has been conducted in rural area (Bappenas, 2011)

The SAF allocation system uses a formula that has three level criteria (namely general, specific and technical criteria) which involve several line ministries in determining the operational variables. The complexity results in a lack of transparency wherein the line ministry monopolised the indicator used. Furthermore, it opens the opportunity for political intervention.

Based on the evaluation during the period 2003 2010 the essence of specific is drowned out by more sightings of the essence of 'equalisation' fiscal capacity both horizontally and vertically which are more functions of the block grant (DAU) and Revenue Sharing Transfer (DBH) (Wibowo et al., 2011). This finding suggests a strong hypothetical assumption of the presence of political earmarking as wondered by the majority of stakeholders (Bappenas, 2011). Also, other literature also put doubt that the allocation is solely based on a formula, and pointed out a practice of political earmark in the SAF allocation.

This study introduces the influence of political earmark or known as pork barreling politics that is the utilisation of government funds for projects designed to please voters or legislators and win votes (Caulier, 2010). Since the year of 2003 is the first time of SAF implementation as well as the year of political campaign before 2004 general election in Indonesia, the year gives a good combination to study the influence of political earmarking as a soft-corruption in public service delivery, especially in the road sector.

The conceptual framework is summarised in Figure 1. Political fragmentation, defined as the effective number of parliamentary member for each district hypothetically determines the allocation of SAF in the road sector in addition to the partial formula-based allocation. The MPs are incentivized to use SAF allocation in road as pork-barreling for two reasons: (i) road is the most tangible public infrastructure and popular tools during the political campaign period and; (ii) in 2003 the Ministry of Finance had not implemented a full formula-based approach due to lack of readiness of the line ministries to provide basic data[2].

Figure 2 indicates a region with less fractionalized central parliament member tends

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[2]This proposition is implied in Bappenas (2011) and Wibowo et al. (2011). I performed an online interview with one of a senior officer in the Directorate of Fiscal Transfer to confirm this proposition, and there is no refute on the issue raised.

Figure 2: Correlation between Fractionalization and SAF Allocation
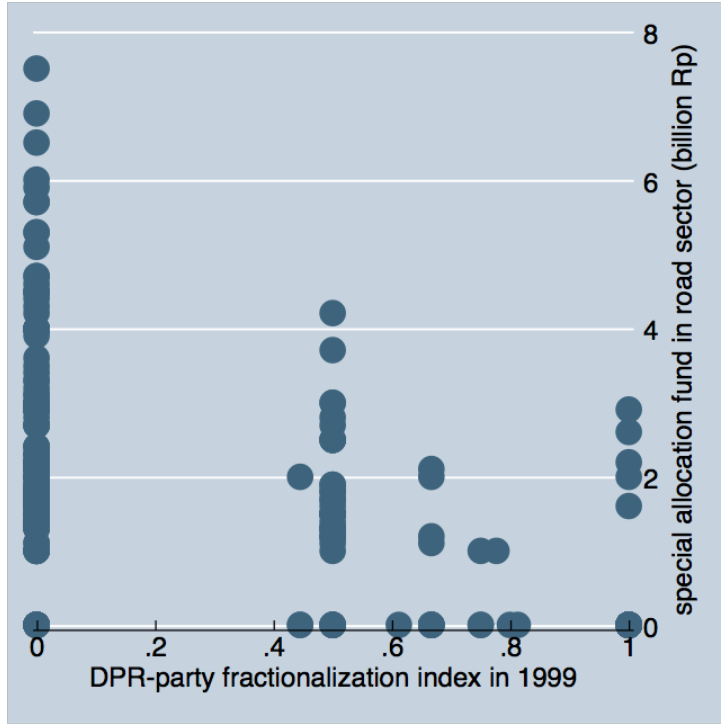
to receive more allocation of SAF in the road sector. The formal test for this correlation is later shown by the first-stage estimate of the allocation function, and it is statistically significant after controlling district characteristics and criteria used to allocate the fund.

3   Data

Three datasets are used in this paper: parliamentary member (MP) by the district from General Elections Commission (KPU), district budget SIKD (Information System for Sub-National Budget) from Ministry of Finance, Village Census (PODES) conducted by the Indonesian central statistical agency (BPS) and Statistic Indonesia.

The central parliamentary (DPR) membership used in this study is the result of 1999 general election in Indonesia. Notably, it was the first democratic election in the country after 1998 *reformasi*. There were 465 central parliamentary members who were elected and represented 321 districts. This study only accounts for 461 out of the 465 since four elected members from Timor Leste (at the time was Timor Timur) were no longer active since August 1999 as a result of Timor Timur independence from Indonesia. Among the

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districts, the average membership was 2, and DKI Jakarta had the largest member of 18. At the election, there had been 22 parties involved and participated in the election. Among them, the five largest membership were PDI Perjuangan, Golkar, PPP, PKB and PAN. We use these parties composition to measure political fragmentation (PF).

SIKD compiles yearly the sub-national budgets in which the intergovernmental transfers were recorded. Using the information in the system, we extract three important determinants of local government ability to provide public good spending: SAF, General Purpose Transfer (DAU) and own source revenue (PAD). The third source of data used is the Village Census that capture road length and the quality of road infrastructure at Village Level. The percentage of the village with asphalt road is used as the indicator of road sector outcome as it becomes downstream of sub-national road infrastructure spending. Table 1 summarises the covariates and the dependent variable of the model in 2003. The last data set is Statistic Indonesia to extract the population number and area for each district.

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Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Change in outcome (% Village with asphalt road)	3.597	9.040	-29.21	36.46	317
special allocation fund in road sector (billion Rp)	1.77	1.535	0	7.5	317
DPR-party fractionalization index in 1999	0.255	0.365	0	1	317
outcome from previous PODES	61.919	25.601	4.69	100	317
technical criteria at base	318.904	599.791	2	4465	228
total GDP in billion	10.278	33.202	0.177	334.331	317
Total Population (in number of people)	1.24	3.577	0.042	38.206	317
Total Area (in Km)	0.009	0.026	0	0.317	317
general allocation fund (billion Rp)	225.773	108.271	52.14	957.616	317
own revenue (billion Rp)	80.188	358.847	1.975	5261.85	317
Infrastructure function expenditure (in IDR)	62.095	132.432	0.391	2073.6	317

4 Estimation Strategy

To establish the causal impact of the new intergovernmental institutional arrangement on economic development, this paper uses instrumental variable set up combined with difference-in-difference approach for the dependent variable executed with 2 stage least square (2SLS) technique. For special fund allocated (SAF) in road sector of region i, it will affect the outcomes (y) as stated in the equation:

$$y_i = \alpha + \beta_1 SAF_{road,i} + \mathbf{X_i}\gamma + \varepsilon_i \tag{1}$$

X_i is set of control variables that cover sub-national economic structures (GDP), spending behaviour (infrastructure spending), capacity (sources of revenues: general allocation fund and own source revenue), and the element of SAF criteria (area, population and length of road) that theoretically affect rural-road. The choice of these covariates follows Kuncoro et al. (2013). The first potential upward bias of β_1 is the selection bias. Regions with poor road infrastructure are being targeted and prioritised to receive the fund under the intergovernmental system. We do not acknowledge this as the reverse causality problem because the outcome used to determine the allocation is two years lag of the current financial year. Secondly, another threat to unbiased estimates will be omitted variable bias. In the early decentralisation time, Indonesia still maintains some of the line ministries programs that go directly to the region and influences road outcome and theses allocations are not captured at the sub-national budget. Such data is not unobservable, yet it hard to find as a result of spotty records in line ministries. Lastly, IV also allows us to relax the assumption of the unobserved heterogeneity for each district ability to perform road construction such as geographical variation and quality of government.

For these reasons, we propose two strategies: (i) using difference-in-difference measure for y_i to overcome selection bias; and (ii) we instrument SAF allocation with political fragmentation (PF) measure in each district. This lead to the following specification of the first stage estimate:

$$SAF_i = \alpha_0 + \beta_0 PF_i + \mathbf{X_i}\delta + \mu_i \tag{2}$$

PF_i is the measure of central parliament fragmentation at the district level. It captures how easy each member originated from a district to perform a pork barreling. The use of PF will meet the exclusion restrictions for two arguments. First, PF was determined in 1999, a time at the time of observation in this paper. Second, the only way PF effect road outcome at the district level is through the SAF fund itself. Under Law No. 29 the year 1999, the central parliamentary member does not have the legal influence to local budget except for intergovernmental transfer including SAF.

Political fragmentation is defined as the effective number of political parties of each district at the central parliamentary (DPR). Adopting the formula to measure fragmentation in Caulier (2010), the index that reflects this measure is calculated as follows:

$$PF_i = 1 - \sum_p s_p^2 \tag{3}$$

The subscripts p refers to individual political parties, and s is a political partys share of its total votes among members in the same district. PF equals 0 means no fragmentation as a party takes all vote share and higher PF means higher political fragmentation. With this construction, this paper assumes that as the effective number of political parties in DPR for a district increases, political fragmentation increases and the ability of members to perform political earmarking becomes weaker. Technically, to be a valid instrument, we expect a negative correlation between SAF on road sector and PF.

This paper picks up the year 2003 as the time frame for the sample because that particular year is the campaign year for the upcoming general election in 2004. It is likely that the incumbents would use their influence to practice political earmarking or pork barreling politics in that year and road is the most common club goods to exploit in Indonesia.

5 Result

5.1 Political Earmarking and SAF in Road Sector

The first-stage estimate in Table 2 suggests a strong indication of political earmarking rather than the formula in determining the allocation of SAF on road sector in 2003. The coefficient on PF is negative and statistically significant. The sign is also confirming the instrument validity; the more fragmented political vote is, the less likely of the political earmarking success thus, the less amount of SAF allocation will be. The excluded F-test and Stock-Yogo statistic also support for the non-weak instrument.

The statistically insignificant coefficient of the formula confirms that during the early time of implementing SAF, the Indonesian government had not ready yet to implement the formula based. The concern over this readiness was raised in Wibowo et al. (2011) and Bappenas (2011). The further interpretation that the allocation of SAF in road sector was used as the campaign instrument to gain popularity among district of origin constituents needs to be checked using primary data. This study put this as an opportunity for further research.

Another important finding from the estimate is that when we observe the sign of each indicator used in SAF on road sector formula in column (2), they capture the granted region counter intuitively. For example, population and area are negatively correlated with SAF allocation on road sector. This confirms the claim made by Shah et al. (2012) that the intergovernmental system is the most complex one that results in unclear priority of the fund.

5.2 The Impact of SAF in Road Sector to Rural Accessibility

Controlling for a set of the eligibility criteria, region size and political fragmentation as the instrument for SAF allocation, the estimates of equation (2) as presented in Table 3 and it shows no impact of SAF allocation in road sector to rural road improvement. Among the covariates, own source revenue (PAD) and general allocation fund (DAU)that are associated with the improvement of rural accessibility and statistically significant. We

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Table 2: Determinants of SAF Allocation in Road Sector

Dependent: SAF in road sector (billion Rp)	(1)	(2)
DPR-party fractionalization index in 1999	-0.82*	-1.36**
	(0.37)	(0.36)
Outcome from previous PODES	-0.00	-0.00
	(0.00)	(0.01)
Total GDP in billion	-0.01	0.00
	(0.01)	(0.01)
Total Population (in million number of people)	-0.05	-0.00
	(0.06)	(0.14)
Total Area (in Km^2)	-3.50	-2.76
	(4.92)	(6.71)
General allocation fund (billion Rp)	-0.00	-0.00
	(0.00)	(0.00)
Own revenue (billion Rp)	0.00**	-0.00
	(0.00)	(0.00)
Infrastructure function expenditure (in IDR)	-0.00**	-0.00**
	(0.00)	(0.00)
island=2	-0.34**	-0.45**
	(0.07)	(0.16)
island=3	0.62**	0.81**
	(0.11)	(0.12)
island=4	0.20**	0.08
	(0.04)	(0.07)
island=5	0.63**	0.49**
	(0.07)	(0.05)
island=6	-0.85*	-0.93
	(0.36)	(0.54)
Technical criteria at base		0.00
		(0.00)
Constant	2.85**	2.86**
	(0.30)	(0.35)
Observations	319	229
Excluded F	5.02	17.59

Standard errors in parentheses

* $p < .1$, ** $p < .05$, ** $p < .01$

Table 3: IV and OLS Estimates of Impact of SAF on Rural Accessibility

	(1) OLS	(2) OLS	(3) IV	(4) IV
Special allocation fund in road sector (billion Rp)	0.17	0.58	-1.05	-0.32
	(0.45)	(0.55)	(1.58)	(1.19)
Outcome from previous PODES	-0.08*	-0.06	-0.08**	-0.07
	(0.04)	(0.05)	(0.03)	(0.05)
Total GDP in billion	-0.07*	-0.18**	-0.08*	-0.18**
	(0.04)	(0.06)	(0.05)	(0.05)
Total Population (in million number of people)	0.61*	-0.40	0.52	-0.42
	(0.25)	(0.36)	(0.35)	(0.36)
Total Area (in Km^2)	-21.69	-52.29	-31.66**	-58.38*
	(19.80)	(38.92)	(13.04)	(33.75)
General allocation fund (billion Rp)	0.00	0.01*	0.00	0.01**
	(0.00)	(0.01)	(0.00)	(0.01)
Own revenue (billion Rp)	-0.01*	0.02**	-0.00	0.02**
	(0.00)	(0.01)	(0.01)	(0.01)
Infrastructure function expenditure (in IDR)	0.02**	0.04*	0.02	0.03**
	(0.01)	(0.02)	(0.01)	(0.02)
island=2	5.95**	6.41**	5.54**	5.98**
	(0.28)	(0.60)	(0.77)	(1.08)
island=3	-2.82**	-2.39**	-1.85	-1.43
	(0.61)	(0.36)	(1.81)	(1.70)
island=4	-0.02	-0.41	0.34	-0.15
	(0.26)	(0.44)	(0.43)	(0.33)
island=5	3.89**	5.09**	4.85**	5.77**
	(0.44)	(0.50)	(1.35)	(0.93)
island=6	3.81**	3.80*	3.37**	3.63**
	(1.12)	(1.52)	(0.74)	(1.39)
technical criteria at base		0.00		0.00
		(0.00)		(0.00)
Constant	3.75	-0.39	7.09**	2.11
	(2.97)	(4.21)	(2.57)	(2.73)
Observations	317	228	317	228

Standard errors in parentheses
* $p < .1$, ** $p < .05$, ** $p < .01$

interpret this result as Local Average Treatment Effect (LATE) of the model. That is the size of the estimated effect will largely explained by the context of pork-barreling in the allocation of SAF in the road sector.

The improvement made by the instrumental variable reasonably takes place when we compare the IV estimate with the OLS estimate on the coefficient of SAF allocation on road sector. OLS yields positive sign but not statistically insignificant. The positive sign indicates the selection bias in the allocation of SAF in the road sector. On the other hand, in the absence of information on to what extent other spotty intervention in road sector had been conducted by line ministries in at district level, the IV estimate yields the contrasting sign, yet statistically insignificant. It indicates that the direct program from the central government in road sector is biased toward less needed and non-SAF recipients. This result suggests that under strong indication of political earmarking, the impact of the special allocation fund in the road sector was not effective. This finding confirms the view that corruption, or in this case study is referred as soft corruption; is sand in the process of decentralising public service delivery in the road sector. We might further infer that if the political earmarking act as the distraction of the formula based allocation, we might expect that the net effect is worse as what is being expected on the efficiency ground. The finding illuminates the efficiency issue as money goes to less prioritised regions as the result of political earmarking.

6   Conclusion

We find an indication that the allocation of SAF in road sector is determined by the political fragmentation in Indonesia in 2003. This indication can be interpreted as the determination of the allocation was more of political earmarking rather than formula based approach. Secondly, the result of this study also suggests that in the presence of political earmarking, a more transparent mechanism o the transfers is needed as it potentially hinders the effectiveness of public good provision. I find that the SAF allocation in Indonesia is less effective in delivering an increase the percentage of rural with asphalt

road in Indonesia in the early implementation of fiscal decentralisation.

Examining such causal impact is an important policy discussion because the mechanism into what extend net effect the political earmarking takes place in any public spending will determine the further reform phase of the decentralisation. This study confirms the sand hypothesis in the context of the decentralising public fund in the road sector. The test under full formula based approach setting will be a valuable complement to this study to compare with the finding of this study. A failure to prioritise such transparent instrument is likely to hinder the effectiveness of the specific transfer especially to promote catch-up process among districts. Within the majority proposition that captive and pork-barrel politics is always bad because it allocates resources based upon consideration of networks rather than efficiency or productivity, the Indonesian context provides more emphasise of using a more simple approach such as block grant transfer in allocating the intergovernmental transfer.

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