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Is Fiscal Decentralization Conflict Abating? Routine Violence and District Level Government in Java, Indonesia

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SIXTH FRAMEWORK PROGRAMME

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Is Fiscal Decentralization Conflict Abating?

Routine Violence and District Level Government in Java, Indonesia[1]

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July 2008

Abstract: Utilising a newly created data set we examine the relationship between routine/everyday violence and fiscal decentralization in 98 districts of the Indonesian island of Java. By examining possible relationships between fiscal decentralization and routine violence, this paper fills a gap in the literature where the analysis of the relation between fiscal decentralization and violence is relatively scant. Routine violence, which is different from both civil war and ethno-communal conflict, centres around group brawls, popular justice or vigilante violence. Despite the uniform implementation of fiscal decentralization, sub-national entities exhibit varying experiences with decentralization, but a common consequence is the increased size of local government. Fiscal decentralization, and the increased size of local government, can alleviate pent-up frustrations with a centralized state, as local government expenditure is seen to satisfy the needs of communities that people identify with more closely. Our results show that this is indeed the case, but the capacity to do so mainly lies with richer districts.

JEL codes: D74, H71, H72

Keywords: Asia, Indonesia, routine violence, fiscal decentralization

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Introduction

The purpose of this paper is to examine whether or not there is a link between routine or everyday violence across various districts in the island of Java and the process of fiscal decentralization in Indonesia. It is now widely accepted that the evolution from autocracy towards lasting democracy in developing countries can be associated with increased violence, and even the risk of civil war; see Hegre et al. (2001) as an example of the literature linking the increased risk of conflict to democratic transitions. Partial democratization provides scope for venting previously pent-up frustrations, a tendency that can be exacerbated in the context of underdevelopment, endemic poverty or economic decline. During the late 1990s, Indonesia could be argued to have had all these characteristics: besides being a developing country where poverty is widespread, the Asian crisis of 1997 triggered a major recession, led to the fall of the authoritarian leader Suharto engendering a democratic transition, and increased violence of various types ranging from those motivated by secessionist tendencies to ethnic violence (such as Muslim-Christian riots) and ordinary everyday violence. We characterise the latter type of violence as 'routine', due to the fact that there is a greater regularity associated with its occurrence in contrast to other forms of violence, whose frequency is more episodic. Decentralization in Indonesia took place within the broader context of the country's democratic transition after the fall of President Suharto in 1998, chiefly as a move to mollify the few, but high profile, separatist tendencies in the country, such as in resource-rich Aceh (Sumatra).

Routine-everyday violence is a relatively neglected area in the quantitative literature on conflict and violence, where the picture is dominated by other forms of violent conflict such as revolutionary war, ethnic secessionism and genocide. Most of the analyses are

conducted at cross-country levels on civil war, although a few studies have tried to extend the exercise to sub-national entities within a country, going beyond civil war.[4] Routine violence is not civil war, although it can have political or even criminal dimensions. In this connection, it has to be emphasised that routine violence has a different genesis to civil war. In explaining routine violence general socio-economic underdevelopment may be more salient rather than inter-group inequality or the desire to capture natural resource based rents.

At the national level, aggregate trends show that the intensity and the severity of collective violence peaked in 1999-2001 (Varshney, Tadjoeddin and Panggabean, 2008), the period when the country launched a big bang decentralization agenda. In Indonesia decentralization has been linked to the outbreak of both ethno-communal warfare (religious or ethnic) as well as 'ordinary' violence, for example mobbing at local level; see Klinken (2006 and 2007) on the former, and Welsh (2003 and 2008) on the latter. The ethno-communal category is part of episodic violence (together with secessionist violence), and ordinary 'mobbing' is part of routine everyday violence. All types of collective violence outside the ethno-communal and separatist forms may be broadly labelled as routine violence. Episodic violence is confined to a few regions in the outer islands of the country.

The two main laws which formed the basis for the decentralization were passed by Parliament in 1999 and took full effect in January 2001. These laid down the responsibilities of sub-national governmental units, and their corresponding inter-governmental fiscal arrangements. Under the decentralized system of government, sub-

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[4] Examples are Barron, Kaiser and Pradhan (2004); Justino (2005); Mancini (2005); Tadjoeddin and Murshed (2007).

national entities (districts in particular) assumed greater responsibilities, with more public funds to be managed. In 1999 (before decentralization) Indonesia's provinces and districts spent only 20% of total public expenditure, the figure increased to 26% in the first year of fiscal decentralization in 2001, and by 2007 this share reached 37% making Indonesia one of the most decentralized countries in the world.[5] The latest figure represents a level of fiscal decentralization higher than the OECD average, and greater than any other East Asian country except China (World Bank 2007: XV). Even though it was primarily a knee-jerk response to the rage of a few rich regions in the country, who wanted to retain more of their locally generated natural resource revenues, decentralization was implemented throughout the country. Does fiscal decentralization have a part to play in explaining the varying intensities of routine everyday violence across homogenous Javanese districts that share ethnic traits (religion and language), as well as being commonly characterised by a high population density?

Everyday violence has been associated with lawlessness and distrust of the state (Welsh, 2003). Following this premise, we will examine the role of the state at the local level under the decentralization regime, and examine its link with different levels of violence across districts. Decentralization, in which sub-national entities assume greater fiscal power and manage bigger budgets, is the starting point. Despite the fact that decentralization has been implemented throughout the country along the same modalities, each sub-national entity seems to have experienced this process differently. A common consequence of decentralization is, however, the increased size of government at the local level, when measured by local government's share in regional income. Two Javanese provinces are excluded from our analysis, the national capital Jakarta (due to its unique

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[5] Authors' calculations based on data presented in World Bank (2007), Table C.8, page 160.

metropolitan nature) and the special region of Yogyakarta (due to data paucity). Therefore, the study focuses on four of the six provinces in Java; the provinces of Banten, West Java, Central Java and East Java. Based on the 2000 census, these areas are home to 109 million people, which is equivalent to 90% of Java's population and 54% of Indonesia's population. The four provinces, cover 98 districts, are highly representative of Java.[6]

By examining possible relationships between fiscal decentralization and routine violence in Java, this paper fills a gap in the literature where the analysis of the relation between fiscal decentralization and violence is relatively scant.[7] In particular, any connection between routine violence and fiscal decentralization has not been analyzed statistically. We have two specific objectives. The first is to examine the link between different magnitudes of fiscal decentralization (local government spending), and the variation in routine violence across districts in Java. The second is to analyze the relationship between local government size after decentralization and routine violence. The rest of the paper is organized as follows: the next section discusses the theoretical framework; the section after that is about the methodology and data used in our analysis; this is followed by the analysis of decentralization and the size of local government; the last section contains some brief conclusions.

Theoretical Framework

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[6] The 98 districts are based on the situation prevailing prior to decentralization. After decentralization, six new districts were formed. This study sticks to the pre-decentralization classification.
[7] In a cross-country statistical analysis, Brancati (2006) finds that *political* decentralization is a useful device for reducing both ethnic conflict and secessionism, but the effect is undermined by the growth or emergence of regional parties. She finds that the impact of fiscal decentralization is statistically insignificant. It has to be borne in mind that her study is across several countries, and our analysis is focussed on Java in Indonesia, a statistically much more homogenous case. While she looks at secessionism and ethnic conflict in cross country setting, our study focuses on the routine-everyday violence at sub-national context within a single country.

The object of this section is to outline the possible conceptual basis between greater fiscal decentralization, implying greater local government economic power, and violence. In general, government spending was thought to reduce tensions within society. By contrast, the Steinberg and Saideman (2008) cross-country study finds that state involvement in the economy at the national level, measured by the Freedom House economic freedom index, increases the risk of ethnic violence. However, the state's involvement in the running of the economy may be independent of government size as measured by the proportion of government consumption in national income. Furthermore, government spending and its relation to conflict may operate more differently at the local and national levels. Whereas central government may be more concerned with control over the commanding heights of the economy, local government is usually closer to the ordinary needs of the people. In the social sciences, decentralized government is generally regarded to be an end in itself, as more local decision making is thought to result in greater democratic governance.

The rationale for the state since time immemorial revolves around public goods provision, ranging from security to health and education, and the theories underlying optimal public goods provision are well known.[8] What is not so well understood is the fact that not everyone in society has the same preferences regarding pure public goods, and participation in these is not universally voluntary. For example, a pacifist is opposed to military expenditure, but is not 'excluded' from the consumption of this public good, as well as being compelled by the fiscal (tax) system to pay for something he despises. As a reaction to these problems, the theory of club goods evolved beginning with the pioneering work of Buchanan (1965) and Olson (1965); see Cornes and Sandler (1996) for a succinct contemporary survey. As the name suggests, club goods are excludable and

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[8] A *pure* public good is described to be non-rivalled and non-excludable. One citizen's consumption does not detract from the ability of other's to benefit from the public good; moreover, its total provision is unrelated to *individual* ability to pay for it.

voluntary. Only members can benefit from the club good, and membership is voluntary. The provision of club goods does not always require state intervention, as members incentives do not lead to under-provisioning. As with a public good, members of a club do share something, so the rule for the optimal provision for public goods based on the vertical summation of individual preferences for the common good or service applies. But here, there is an additional requirement, related to membership. This is to do with the fact that on the one hand increased membership can reduce per-unit costs (because of economies of scale or scope); but on the other hand, more people sharing leads to congestion and may crowd out benefits. So, both of these factors need to be taken into account in the pricing and provision of club goods. The important point here is that many *local* government services are closer to the characteristics of club goods (or at least they are impure public goods) compared to pure public goods, particularly at the local level. Furthermore, outcomes closer to the club goods optima may be achieved with greater local control over public expenditure. Since this implies volition, it may be conflict reducing.

Related to the theory of club goods, there are two other theories, which may also have a bearing on decentralized fiscal systems and their relation to conflict. One is the theory of optimal size of jurisdictions providing local public goods, going back to the work of Tiebout (1956). If individuals can choose, they will live in areas that provide a set of local services corresponding to their personal utility, and they will form local collectives based on these similar preferences with like minded individuals, and also minimize per-capita average cost of provision. Decentralization, can lead to outcomes closer to the Tiebout optima. The second theory that merits mention is the theory of associations (Basu, 1989), where the membership's preferences and willingness to pay are often at variance. This implies that the composition of the club or association or locality is heterogeneous.

Optimal membership rules would need to trade-off taste differences among members with their differential abilities to pay.[9] Greater local control over public expenditure produces greater homogeneity over the preferences for goods, especially when different jurisdictions have varying willingness to pay for different ranges and quantities of services. In other words, the gap between preferences of members and their willingness to pay is bridged to a larger extent when there is greater local fiscal autonomy, and could abate conflict.

Routine social (or group or collective) violence is neither civil war nor ethno-communal violence, as indicated above. It does not have the explicit political aim of overthrowing the state as in the case of civil war, or the emasculation of a rival group as in the case of ethno-communal violence. It is not simply crime, although it could have criminal dimensions. It refers to regular group violence that is not episodic in nature. The two most important variants of everyday social violence are vigilante violence and inter-neighbourhood/village/group brawls. The theoretical underpinnings for routine violence are similar to those utilised to explain mass political violence short of internal war, see Hibbs (1973). Gurr (1970) emphasised the role of relative deprivation in explaining violent conflict, specifically the role of disparities between aspirations (brought about by economic progress) and realities in producing conflict. Historical accounts suggest that in early stages of development violence and increasing prosperity initially go hand in hand, but decline thereafter (Bates, 2001). Traditional societies may have rules and norms that manage violent behaviour. An increase in prosperity may encourage predatory behaviour in the form of private violence (akin to our concept of routine violence) by the less fortunate. Once growth progresses further, violence has to decline to sustain the security of

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[9] Richer regions may have a greater ability to alleviate poverty, but may be unwilling to do so for the poor in distant parts of the country that they do not always identify with.

investment. Routine violence, in societies like contemporary Indonesia, may be symptomatic of the return of privatised social violence, precipitated by economic decline and the frustration spawned by greater awareness in the midst of the lack of commensurate progress. Furthermore, the long shadow cast by political transition, and the demise of traditional means of conflict resolution can trigger a return to 'private' violence. Economic recovery may not initially reduce violence, until that recovery is sustained enough to reduce societal frustrations. Consequently, there will be a lag between economic development and the decline in routine violence. Fiscal decentralization and the increased size of local government can go some way in alleviating these pent-up frustrations with a centralized state, exerting a short-term palliative effect upon routine violence. This is because local government and expenditure is seen to satisfy the needs of communities that people identify with more closely, when compared to the activities of a distant central government.

Methodology and Data

The dependent variable we seek to explain is the number of routine violent incidents (as explained above) across districts in Java. This variable is in the form of count data that may take on any non-negative integer value, including zero. Therefore, the dependent variable is discrete, and cannot be treated as a continuous random variable. The most basic model for estimating count data is the Poisson regression model for rare events.[10] The standard model specification is the following.

$$P(Y = y_i) = \frac{e^{-\lambda_i} \cdot \lambda_i^{y_i}}{y_i!}, \text{ where } \lambda_i = E\langle y_i | x_i \rangle = \exp(x_i^{'}\beta), \text{ and } y_i = 0,1,2,... \tag{1}$$

Here, i indexes individual observational units (in this study, district or district-year), x_i denotes a vector of explanatory variables for i, and β is a vector of coefficients to be estimated. In the context of our analysis, y_i is the number of violent incidents in a district. This standard model does not recognize the possibility of repeated observations on units over time.

The Poisson implies a feature called equi-dispersion, where mean equals variance: $\lambda_i = \sigma_i^2 = \exp(x_i^{'}\beta)$. However, if the underlying process is not Poisson in nature, over-dispersion may exist, and a Poisson specification may not be appropriate. In the case of over-dispersion, a popular alternative is the negative binomial (NB) distribution, which can be specified as including a random variable u_i in the mean function, $\exp(x_i^{'}\beta + u_i)$.

If this random term u_i follows a gamma distribution with shape and scale parameters both equal to θ, one has the following negative binomial model:

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[10] For more details on count data regression, one may consult Cameron and Trivedi (1998) and StataCorp (2005). Count data regressions are common in certain types of empirical research such as criminology.

$$P(Y = y_i) = \frac{\Gamma\left(y_i + \frac{1}{\alpha}\right)}{\Gamma(y_i + 1)\Gamma\left(\frac{1}{\alpha}\right)}\left(\frac{1}{1 + \alpha_i \mu_i}\right), \text{ where}$$

$$\pi_i = E\langle y_i | x_i \rangle = \exp(x_i' + u_i) = \upsilon_i \exp(x_i' \beta) \qquad (2)$$

Here, $\alpha = \frac{1}{\theta}$, is the over-dispersion parameter and $\Gamma(\ )$ is the gamma function. Given the

mean or expected count, μ_i, the count variance is $V[Y_i] = \sigma_i^2 = \mu_i(1 + \alpha.\mu_i)$.

It should be noted that moving to negative binomial as an alternative to the Poisson when there is evidence of over-dispersion is only one possible option. As Berk and MacDonald (2007) assert, if apparent over-dispersion results from specification errors in the systematic part of the Poisson regression model, resorting to the negative binomial distribution may not help. For purposes of comparison, we present results run on OLS, Poisson and NB techniques respectively, based on the same econometric specification.

The data on the dependent variable, the number of incidents of routine social violence across districts in Java are taken from a unique and newly constructed UNSFIR dataset on social violence in Indonesia (UNSFIR/UNDP, 2004). [11] Each incident of violence is recorded in a template, which covers the following information: place, date, duration, category, fatalities (killed, injured), property damage (houses, shops, and public buildings). The data can be disaggregated up to the district level; most can be disaggregated up to the sub-district level, and most village names where violence incidents took place can be traced. The dataset is based on daily reports of leading provincial newspapers. [12]

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[11] For detail explanations on the dataset, see Varshney, Tadjoeddin and Panggabean (2008). Jakarta and Yogyakarta are excluded, but the remaining provinces cover 90% of Java's population.
[12] It should be pointed out that all conflict data, including the highly regarded PRIO-Uppsala data set on conflict, is collected from a variety of anecdotal sources comprising the media, human rights groups and the

This dataset is the most comprehensive nation-wide data on social violence available in Indonesia, covering 14 provinces in Indonesia for the period 1990-2003. [13] The UNSFIR/UNDP social violence database has been criticized as an underestimate by the World Bank, who in turn develop their own database for 12 districts (seven in East Java province and five in East Nusatenggara province), for the period 2001-2003, based on district or sub-provincial newspapers (see Barron and Sharpe, 2008). The practical application of the World Bank approach of using district newspapers on a wider scale is highly questionable, given the fact that district newspapers are not evenly available across regions in Indonesia. Another data set was gathered by Bridget Welsh of Johns Hopkins University-JHU (Welsh, 2008). Welsh collected data on all vigilante violence in four provinces (West Java, Bengkulu, Bali and South Kalimantan) from all available provincial and district newspapers supplemented by data from police offices at the district level. She also produces a significantly higher figure of vigilante violence in West Java. Both alternatives give higher figures, but their data are limited to a few regions: Welsh (2008) for four provinces and only for vigilantism (1995-2004); Barron and Sharpe (2005) only cover 12 districts (2001-2003). The last dataset available is conflict data at village level collected by *Badan Pusat Statistik* (BPS-Statistic Indonesia) through the long standing PODES-village potential survey for all 69,000 villages in Indonesia for the year 2002, based on information provided by village heads. This is the first attempt made by BPS to collect conflict data; where the definition of conflict is somewhat ambiguous and the data

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Red Cross. At the country level, as another example, a database on Hindu-Muslim riots in India 1950-95, based on *THE TIMES of India*, was put together by Steven Wilkinson and Ashutosh Varshney, see Wilkinson (2004) and Varshney (2002).

[13] The 14 provinces are Riau, Jakarta, Banten, West Java, Central Java, East Java, Central Kalimantan, West Kalimantan, South Sulawesi, Central Sulawesi, East Nusatenggara, West Nusatenggara, Maluku, and North Maluku. It is estimated that the 14 provinces account for 96.4% of total deaths in non-separatist violence in Indonesia (see Varshney, Panggabean and Tadjoeddin, 2006).

is only available for one year (Barron, Kaiser and Pradhan, 2004).[14] The four datasets, UNSFIR/UNDP, World Bank, JHU and BPS-*Statistic Indonesia* have different approaches to violence –in term of definition and methodology— in constructing their database.

Due to the fact that routine violence is not episodic, all incidents of non ethno-communal violence in the UNSFIR database are categorised as routine violence, since the database does not collect data on separatist violence which exclusively refers to violence in Aceh and Papua where separatist movements were/are in place. Ethnic here is broadly defined as in Horowitz (1985), who argues that all conflicts that are based on *ascriptive* (birth based) group identities –race, language, religion, tribe, or caste— can be called ethnic. Can ethno-communal violence be routine in nature? This is possible, as in the case of Hindu-Muslim violence in India, and may be argued to be a feature of everyday life of in particular Indian localities. However, based on the fourteen years of data available in Indonesia, ethno-communal violence is more appropriately described as episodic, since these incidents are concentrated in particular places and times, and does not occur with an empirical regularity to warrant description as part of everyday life of the society. In empirical terms, however, a group brawl may have an ethno-communal dimension. The UNSFIR database carefully considers which incidents belong to the ethno-communal category. An incident of violence (brawls, riots, or vigilantism for example) is coded ethno-communal, if ethno-communal symbols were present in the incident; information that is unlikely to be missed in the newspaper report of the event. Furthermore, all available detailed case studies or specialised reports on social violence were consulted in constructing the dataset.[15]

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[14] Similar data were also gathered in the subsequent PODES survey in 2005.
[15] One of the authors (Zulfan Tadjoeddin) was the coordinator for the construction of the UNSFIR database.

Episodes of everyday violence are in themselves not homogenous, and can occur along different cleavages. The most dominant cleavage is linked to inter-community groupings (so long as such conflicts were not unmistakably linked to ethno-communal groupings),[16] followed by state versus community disputes.[17] A very small number of incidents also take place between different arms of the state apparatus.[18] The breakdown of incidents of routine violence in Java along these cleavages is presented in Table 1.

Table 1: Routine-everyday violence by cleavages in Java, 2001-03

Cleavages	Number of incidents	No of Deaths
Inter-community	580	203
State-community	86	9
Between state apparatus	3	1
Total	669	213

Source: Author's calculation, based on UNSFIR database

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[16] Consider the following two examples. First, on 16 May 2002, the West Java provincial daily *Pikiran Rakyat* reported that a day before hundreds of villagers from *Kampung Madu Tawon*, Village *Nagrak Utara* in District *Sukabumi*, West Java, burned down a house and a car belong to a man called AC. The incident was triggered by the torture of another man called Ronal committed by AC's friends from a neighbouring district. AC and Ronal were fighting over a woman. Second, on the night of 16 September 2002, there was a group brawl between villagers from the two neighbouring villages of *Cipedang* and *Gabuswetan* in District *Indramayu*, West Java. The brawl was triggered by a dispute between drunken youths from those villages. Dozens of houses were damaged due to stoning by the two groups. The district police were deployed to calm the situation down and 20 youths were arrested. Fortunately, there were no fatalities due to the brawl. The West Java provincial daily *Pikiran Rakyat* reported the incident.

[17] The state versus community type is defined as attacks by the government machinery on civilians and vice versa –so long as such attacks were not demonstrably for ethno-communal reasons. Consider the following example, on 8 November 2002, the East Java provincial daily *Jawa Pos* reported that a day before villagers from Village *Moropelang*, in District *Bojonegoro*, East Java, prevented policemen from arresting a thief hiding in the village. They burned down a police car. A village leader helped to calm down the tense situation and the clash did not continue.

[18] As an example, on 12 August 2002, in District Bogor, West Java, around 20 police personnel from a police mobile brigade unit attacked a settlement occupied by an army unit. The army unit was aware of the planned attack, and had been prepared to resist with 40 men. Then a serious brawl occurred. A policeman was killed and three others were seriously injured. The police attack was revenge for a previous clash between police and army (*Pikiran Rakyat*, 14 August 2002).

Data on local government expenditures at district level are obtained from the Ministry of Finance.[19] Data on per-capita Regional Gross Domestic Product (RGDP), RGDP growth and population are taken from BPS-*Statistic Indonesia* publications. The summary statistics on the data are presented in the appendix.

Does Decentralization Reduce Violence?

In Java, the incidence of routine violence peaked in 2000, see figure 1. This was in between the year 1999, when the decentralization laws were passed, and 2001 when decentralization first took full effect. After that, routine violence has steadily declined. What accounted for the peak? At the aggregate level, it is not clear whether the peak in violence was due to democratization or the decentralization that followed. It would be interesting to know to what extent fiscal decentralization explained the varying degrees of routine violence across districts in Java.

Figure 1: Routine-everyday violence in Java, 1994-2003

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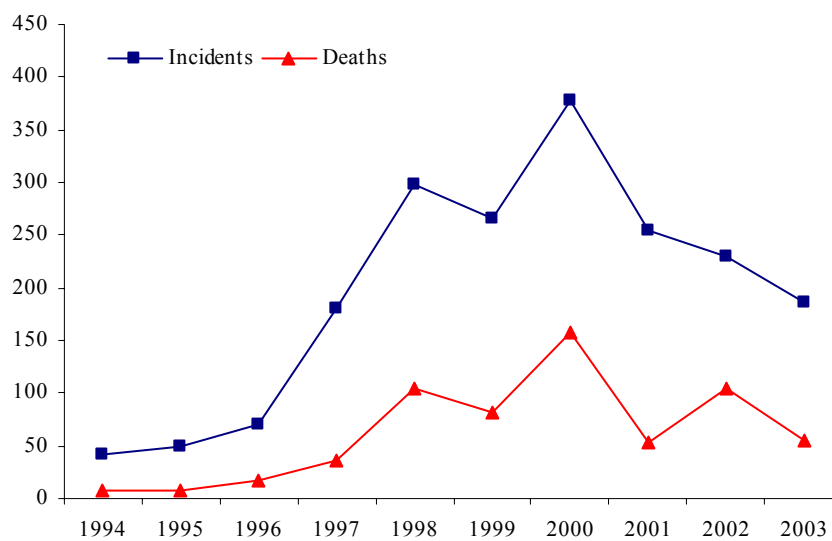
[19] Available online at www.djpk.depkeu.go.id.

To address this issue we need a measure capable of gauging differences in the implementation of fiscal decentralization across districts. One way to do this is by measuring the impact of fiscal decentralization on the size of local government expenditure at district level. In other words, within a similar national agenda for decentralization, this measure should be able to inform us about the different magnitudes of the incremental increase of local government expenditure after decentralization. Let us label this as 'the impact of fiscal decentralization.' There are two main features of what decentralization implies at the district level: (i) district local governments assume more responsibilities with increased staff, and as a consequence (ii) manage a bigger budget. Since it is difficult to find a simple and quantifiable proxy for the former that enables us to differentiate between districts, this paper will focus on the latter measure. Consequently, the fiscal decentralization impact is measured by the increase in total district government expenditure due to decentralization. The main source for this is the rise in central government spending channelled through district governments, as well as small proportion due to the growth of the economy.[20]

We follow two practical strategies to operationalize the fiscal decentralization impact. First, we take the simple average of district expenditures for 2001-03; let us call this *J*. The aim is to cover the overall increase of the local budget for the first three years of fiscal

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[20] Between 1999 and the first three years of fiscal decentralization (2001-03), on average in real term at national level, central government transfers (including the revenue sharing of natural resource rents) to district governments increased by 138%. At the same time, total district own revenues also increased by 182%, since district governments become more active in collecting their own local revenues due to decentralization. However, the role of district own revenues in the overall district government revenues is still small: 13% in the period of 2001-03 and 11% in 1999 (Source: authors' calculation based on data presented in World Bank (2007), Table C.8, page 160).

decentralization.[21] The impact of fiscal decentralization is measured by the ratio of district expenditure after decentralization (*J*) to district expenditure before decentralization (*K*), both in real terms. For *K*, we take the district expenditure for fiscal year (FY) 1999/2000 (April 1999 to March 2000). We do not use FY 2000 figures since it represents a nine month transitional budget before the full implementation of fiscal decentralization in FY 2001 that was started on 1st January. The effects of inflation are removed using the GDP deflator at district level to arrive at real figures. Following decentralization, the size of district expenditure in Java during the first three years of decentralization increased on an average by 143%, with a standard deviation of 54. The actual figures vary a lot across districts. Districts with the highest impact of fiscal decentralization experienced a 380% increase in local public expenditure, while those at the lowest end had only a 12.5% increase. Using this approach we have a pure cross sectional observation of 98 districts. Second, we measure the impact of fiscal decentralization for each year during 2001-03 compared with situation before decentralization (FY 1999/2000) by taking a ratio as before. This allows us to have a panel observation of 98 districts over three years.

In the first approach, the dependent variable in our econometric model is the cumulative incidence of routine violence during the first three years of fiscal decentralization (2001-03). This is to capture the longer term dynamics of violence in each district. We then examine the relationship between the level of routine violence (*Violence*) and the impact of fiscal decentralization (*Decentralization*) by placing them in the context of the growth model of routine violence used by Tadjoeddin and Murshed (2007), which argues that growth will eventually reduce routine violence as people have more to lose from this type of behaviour, but in a non-linear fashion. Violence is first postulated to rise as average

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[21] This is to capture any improvements made in the second and third years of the implementation of fiscal decentralization after the rather chaotic situation in the first year.

income increases, because of the disaffection and relative deprivation created in certain quarters, and at some later point it declines as development takes firm root. But here we are primarily concerned with the role of the fiscal channel, and its impact on conflict. Also, because we are examining routine violence, and not separatist violence, there is unlikely to be any reverse causality between the fiscal variables and the dependent variable, routine violence. Fiscal decentralization was one of the political responses to separatist movements, as noted above. Fiscal decentralization, which commenced in 2001, had nothing to do with routine violence in the islands of Java, ruling out endogeneity problems between fiscal decentralization and our conflict dependent variable.

The process is formalized in the following *Decentralization model*:

$$Violence_i = \beta_0 + \beta_1 Decentralization_i + \beta_2 Growth_i + \beta_3 Income_i + \beta_4 Income_i{}^2 + \beta_5 Population_i + \varepsilon_i$$

The other independent variables act as control variables: the growth of RGDP (*Growth*),[22] per-capita RGDP in 1993 constant prices (*Income*), the square of per-capita RGDP (*Income²*), and population size (*Population*).[23]

The results are presented in Table 2. We start with the basic count data estimation technique, Poisson regression in column (a).[24] This shows that higher increase of district spending due to decentralization is significantly associated with lower levels of routine violence. It implies that districts experiencing a higher degree of fiscal decentralization

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[22] Another paper, Tadjoeddin and Murshed (2007), instruments for the growth rate, because of potential reversal causality with our conflict variable, but here we do not do so because per-capita income, its square, and growth rates act only as *control* variables for our fiscal decentralization independent variables.

[23] We use the simple average value of RGDP growth and per-capita RGDP for 2001-03, and for population we use figures for 2001.

[24] We also ran an OLS regression, but this leads to very poor results, which are available upon request to the authors.

tend to be more peaceful. GDP growth is insignificant. The relationship between income and violence is in the form of inverted–U–shaped curve and the result is highly significant, which is consistent with the Tadjoeddin and Murshed (2007) finding. The Poisson technique, however, could suffer from the problem of over-dispersion. Likelihood-ratio tests indicate that there is an over-dispersion problem with the Poisson model, indicating that we should try the negative binomial (NB) estimation technique for count data. In the NB estimation in column (b), the *Decentralization* variable continues to be highly significant, but *Income* and *Income-squared* lose their significance.

Table 2: Decentralization model (A) – cross section observation

(Dependent variable: total incidents of routine violence 2001-03)

	(a)		(b)	
	Poisson		NB	
Impact of fiscal decentralization	-0.661	***	-0.441	***
Growth (average RGDP growth 2001-03, in decimal)	2.807		2.160	
Income (average per capita RGDP 2001-03, Rp)	5.5E-07	***	3.7E-07	
Income squared	-1.0E-13	***	-6.9E-14	
Population (in 2001)	4.1E-07	***	5.4E-07	***
Observations	98		98	
Log likelihood	-330.025		-271.012	
alpha			0.419627	
Pseudo R-squared	0.230		0.071	
χ2 (p-value)	0.000		0.000	

Note: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively; each regression has a constant term.

The second approach allows us to exploit the panel nature of the data. The results are presented in Table 3, which confirm the results of the first approach and, yield even better results. Likelihood-ratio tests indicate that there is an over-dispersion problem with the

pooled Poisson model; we try the pooled negative binomial (NB) estimation technique for panel count data. In the pooled NB estimation in column (b), not only the *Decentralization* variable continues to be highly significant; but *Income* and *Income-squared* also retain their significance.[25]

Our results highlight an additional, and hitherto unrecognized, useful effect of fiscal decentralization by alleviating pent-up frustrations with a centralized state, and thereby having a palliative effect upon routine violence. It should be noted, however, that the time period of the study as quite short, covering the first three years of decentralization (2001-03), as the UNSFIR violence database has not been updated.[26] Another potential caveat is due to the fact that we have no means of distinguishing between the impact of fiscal decentralization and the 'mature' democracy effect, which is usually measured by the time that a democracy has survived unscathed following the first truly democratic election (1999 in the Indonesian case).

Table 3: Decentralization model (B) – panel observation

      (Dependent variable: incidents of routine violence)

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[25] We also try the random effects estimation, but STATA cannot estimate the model since the initial values are not feasible in fitting the full model. Therefore we assume that the pooled NB is the best estimation.
[26] The Indonesia country office of the World Bank has being updated and expanded the UNSFIR social violence database that will be a valuable resource for further exercises of quantitative conflict studies in Indonesia.

	(a)		(b)	
	Pooled Poisson		Pooled NB	
Impact of fiscal decentralization	-0.430	***	-0.352	***
Growth (of RGDP, in decimal)	0.148		0.707	
Income (per capita RGDP, Rp)	5.5E-07	***	4.2E-07	*
Income-squared	-1.0E-13	***	-7.7E-14	*
Population	4.1E-07	***	5.0E-07	***
Observations	294		294	
Log likelihood	-620.457		-557.786	
alpha			0.581	
Pseudo R-squared	0.131		0.058	
$\chi 2$ (p-value)	0.000		0.000	

Note: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively; each regression has a constant term.

Violence and the Scale of Local Government

Decentralization should, *a priori*, significantly increase the size of the state at the local level, since sub-national entities assume greater responsibilities with an enhanced fiscal capacity.[27] The principal rationale for decentralization is to bring services closer to the people, and it implies a greater role for district government. If this is true we may conclude that greater local government capacity enhances local trust for their corresponding local district governments, resulting in a lower level of violence. Again, a

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[27] The origin of increased sizes of local district government budgets can be differentiated into two sources. First is a truly incremental increase in (fresh) money spent at the local level. This is very apparent in the case of local revenue derived from the sharing of natural resource rents as experienced by few resource rich regions, such as Aceh, Riau, East Kalimantan and Papua. However, new fresh transfers from the centre are also possible depend on the different needs of localities. In addition, local district governments have also become more active in collecting new sources of local revenues. Second is the shifting pocket of spending from central to district governments due to the transfer of responsibilities such as health, education and infrastructure, while in fact such spending items had been there at the local level before the decentralization, but they were centrally managed. In the resource-poor Java, the second component is much more dominant than the first. However we are not able to separate them due to data paucity. The allocations of incremental revenues are determined according to the fiscal balance law for resource rents, and according to the nationally designed formula for the general allocation fund (transfer). However, a very limited room is still available for patronage networks between local and national elites as there has been reported that local executives have also tried to lobby relevant national elites in order to secure more allocation of certain budget items for their districts such as disaster mitigation funds.

measure of public finance is used as the proxy for state capacity at the local level, something that varies across districts. The fiscal dimension is only one indicator of state capacity; others refer to the competencies that are devolved to local government and the size of the bureaucracy at district level. However, the extent of devolution is difficult to measure, quantify and differentiate across districts, and we do not have data on the size of district bureaucracies. Consequently, we employ a measure of the economic size of district government relative to local income (local expenditure to RGDP). We concentrate on the first three years of decentralization between 2001 and 2003, which enables us to construct panel data analyses (98 districts across three years).

To examine the relationship between the size of the state at the local level and the level of violence across districts, we formulate a *State model*, which is written as follows:

$$Violence_{it} = \beta_0 + \beta_1 State_{it} + \beta_2 Growth_{it} + \beta_3 Income_{it} + \beta_4 Income_{it}^{\,2} + \beta_5 Population_{it} + \varepsilon_{it}$$

We use the standard growth model as the point of departure. The dependent variable is the number of routine violent incidents (*Violence*). The main independent variable is the size of the state at the district level (*State*) approached in two ways: (i) the ratio of local government expenditure to RGDP, which measures the magnitude of government relative to the local economy, and (ii) by disaggregating sources of local district revenue into locally generated revenue, transfers from higher governmental echelons (central and provincial), and natural resource rents; all in terms their ratios to RGDP. Nominal district expenditures and revenues are adjusted by the GDP deflator to obtain real values, making them comparable to per-capita RGDP, which is in 1993 constant prices. Similar to the

previous model, control variables are RGDP growth (*Growth*), per-capita RGDP (*Income*)

and its square (*Income^2*), and the population size (*Population*).

Table 4: State model – panel observation

(Dependent variable: incidents of routine violence)

	(a1)		(a2)		(b1)		(b2)	
	Pooled Poisson		Pooled NB		Pooled Poisson		Pooled NB	
Expenditure to RGDP ratio	-5.006	***	-3.212	*				
Locally-generated Revenue to RGDP ratio					-25.600	***	-17.065	
Net Transfer to RGDP ratio					-3.177		-2.712	
Rent to RGDP ratio					36.395		33.622	
Growth of RGDP (decimal)	0.919		1.895		1.897		2.999	
Income (PC RGDP, Rp)	2.0E-07		2.4E-07		2.8E-07		2.5E-07	
Income-squared	-5.4E-14	*	-5.6E-14		-6.8E-14	**	-6.0E-14	
Population	3.2E-07	***	4.4E-07	***	3.2E-07	***	4.0E-07	***
Observations	294		294		294		294	
Log likelihood	-632.9		-562.2		-625.46877		-559.9869	
alpha			0.627				0.603	
Pseudo R-squared	0.113		0.051		0.124		0.055	
χ^2 (p-value)	0.000		0.000		0.000		0.000	

Note: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively; each regression has a constant term.

The results of the *State model* are presented in Table 4. The Poisson regression results are presented under columns (a1) and (b1).[28] We only report the pooled estimations, since their panel (random effects) counterparts do not differ significantly.[29]

Both the count data models (a1 and a2) suggest that a larger government size relative to the economy significantly lowers violence. This is because greater (local) government expenditure assuages the pent-up frustrations that underlie routine violence. Appendix table C.2, however, suggests a negative correlation between district per-capita income and the relative size of local government expenditure relative to local income. This is because

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[28] Both models (a1) and (b1) have the over-dispersion problem. Expenditure to RGDP ratio retains its significance in the NB estimation in column (a2), while locally generated revenue to RGDP ratio loses its significance in column b3. However, as has been stressed by Berk and MacDonald (2007), moving to negative binomial is only one alternative to the Poisson, since it is likely that excess variation around fitted values results from specification errors in the systematic part of the Poisson regression model.

[29] Likelihood ratio tests are performed to check the appropriateness of the panel estimation (random effects) model against the pooled variant. Detailed results are available from the authors.

in a homogenous society like Java, and where the same laws regarding public expenditure apply, we would expect relatively poorer regions (with lower per-capita income) to have bigger government relative to local income (local government expenditure over GRDP). Richer regions may have more resources, yet the proportionate size of the state may be smaller. It also has to be borne in mind that fiscal decentralization has taken place in the context of the democratic transition in Indonesia, and is part and parcel of transferring more power to local regions, particularly for those Indonesian regions beyond the island of Java that are ridden with secessionist movements who had more local control over natural resource rents as a stated political goal. If diffusing tensions in resource-rich Javanese regions necessitated greater fiscal decentralization, the more homogenous Javanese regions could not be exempted from the process.

Table 5: Structure of district revenue in Java (98 districts in 4 provinces)

	2001	2002	2003	Avg. 2001-3
Net Transfers from central/provincial government	78.2	70.6	75.3	74.7
Locally generated revenue	16.4	18.1	19.6	18.0
Rents from natural resources	0.9	1.1	1.1	1.0
Other	4.5	10.2	4.0	6.2
Total	100.0	100.0	100.0	100.0

Notes:

- Net transfers consist of *DAU* (block grants), *DAK* (earmarked grants) and other revenues from the central and provincial government. However DAU block grants constitute the bulk, accounting for more than 90% of the total transfer.

- Locally generated revenue consists of PAD (*pendapatan asli daerah*, genuine local revenue) and *bagi hasil pajak* (tax component of revenue sharing between the centre and district, the tax is collected by the centre but derived from the district, like personal income tax). Since these taxes originate from economic activities at the district level, we treat it as part of locally generated revenue, even if technically this component is a transfer from the centre. PAD (genuine local revenue), which is directly collected by district government, consists of local taxes, and profits of district government owned companies, such as the District Water Company. Therefore, locally generated revenues are reflective of the relative prosperity of the region.

- Rent from natural resources is an item under the revenue sharing scheme between the central and regional governments. In principle, this can be considered part of locally generated revenues since it is derived from natural resource-based economic activities within the district. Rents from neighbouring districts within the same province can also accrue to the district for certain types of natural resources, such as oil and gas. This category of local revenue is very important in a few resource rich regions outside Java.

- Other sources of revenue includes surplus from previous years budgets, regional borrowing and the emergency fund.

Model (b) differentiates the sources of public expenditure along the lines of locally generated revenue, transfers from the provincial or central government, and rents from natural resources. Based on the count data models (b1 and b2) only the Poisson estimate for locally generated revenues turns out to be highly significant. The structure of district government revenue is summarized in Table 5. Around three quarters of the revenue is derived from transfers from central government (with a very small transfer from provincial governments). We can explain away the statistical insignificance of resource rents based on their unimportance in Java (Indonesia's natural resource endowments are mainly outside the densely populated island of Java). On an average, natural resource rents only account for around 1% of total district revenues. However, the more puzzling finding is that locally generated revenues, which account for only 18% of total district revenues, are statistically significant, while transfers from the central or provincial government, which are much greater in magnitude, are insignificant?[30] These results imply that local revenue generation is more intimately linked to the reduction of violence, when compared to transfers from the centre. A greater share of locally-owned revenue implies a relatively richer district, while a poorer district has to place a greater reliance on net transfers from the central government. Furthermore, it is these poorer districts that face a greater risk of routine violence on account of their relative underdevelopment. They experience greater violence because they have not yet reached an income and developmental threshold (which is reflected in their more limited fiscal capacities) from where routine violence starts to decline. But they too should eventually begin to see a fall in episodes of routine violence once development, per-capita income have risen above a certain level. These results are consistent with the findings in Tadjoeddin and Murshed (2007), which identify

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[30] The p-value for transfers is 0.104, marginally above the 10% level of significance.

per-capita income and educational attainment thresholds beyond which violence begins to decline in the longer run.

Conclusions

In conclusion, we find empirical evidence that routine social violence in the island of Java in Indonesia is negatively associated with the impact of fiscal decentralization and the size of local government. Thus, we have established an additional and not normally recognized positive spillover of fiscal decentralization.[31] Our findings are in line with economic theories of public goods provision, which argue that local public goods provision may be more in line with the nature of club goods that are provided in optimally designed jurisdictions. Such mechanisms may increase the well being of local people, who may identify more closely with their local government leading to reduced routine violence. Routine violence is regarded to be a manifestation of the frustrations that result from aspirations not matching reality (Hibbs 1973; Gurr 1970), and we find that greater local government expenditure relative to local income lowers routine violence. Our findings are also consistent with the historical evidence presented by Bates (2001), and the empirical model for Java in Tadjoeddin and Murshed (2007), which suggests that growing prosperity initially raises violence before it actually abates after increases in average income. This results in an inverted U-shaped relationship between rising income and violence.

There are two further issues to be considered before concluding. The first is to do with relations between central and local government as envisaged in the fiscal federalism

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[31] From a temporal variation perspective at the national level, some studies simply link the significant outbreak of violence during the transition with the decentralization reform directly implying that decentralization was a cause of the violence; see Klinken (2006) and Welsh (2008). However they simply ignore the spatial variations of violence after the decentralization. This study carefully examines at the spatial variations of routine violence across districts in Java in relation to fiscal decentralization.

literature; Oates (1972) for example. The USAID-AusAID (2006) report on the progress of the decentralization process in Indonesia suggests that improvements can be made in central-local government relations. In accordance with the fiscal federalism literature, a more cooperative solution with regard to subjects of local competencies and revenue sharing between the central and local entities is desirable. Secondly, fiscal decentralization in Indonesia, despite its many desirable properties, has led to the widening of inequalities in fiscal capabilities of the various local regions in the country. According to the USAID-AusAID (2006) report some 80% of shared taxes and natural resource based revenues accrue to the richest 20% of the district/city governments in the country. We have shown that greater local government spending can lead to conflict abatement, but unfortunately this capacity is greater in richer districts. Greater development in the poorer districts should be conflict abating, and that process can be accelerated through the central transfer mechanism, which will eventually result in greater local revenue generating capacities that truly mitigate routine violence.

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Appendix

A.1. Decentralization model (A): Summary statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Cumulative violence incidents 2001-3	98	6.8	6.4	0.0	27.0
Impact of fiscal decentralization	98	2.3	0.5	1.0	4.5
Growth (average RGDP growth, in decimal)	98	0.038	0.012	-0.009	0.071
Income (average per capita RGDP, Rp)	98	1879248	2695337	573016	25800000
Population	98	1141281	760571.3	110100	4817084

A.2. Decentralization model (A): Matrix of correlations

	Violence	Dec	Growth	Income	Pop
Violence incidents	1				
Impact of fiscal decentralization	-0.305	1			
Growth	0.238	-0.280	1		
Income	-0.083	0.137	0.051	1	
Population	0.554	-0.240	0.245	-0.089	1

B.1. Decentralization model (B): Summary statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Violence incidents	294	2.3	2.7	0.0	19.0
Fiscal decentralization impact	294	2.4	0.7	0.5	5.7
Growth (of RGDP, in decimal)	294	0.038	0.017	-0.081	0.102
Income (per capita RGDP, Rp)	294	1879248	2687018	557181	26100000
Population	294	1157735	780448.7	110100	5171465

B.2. Decentralization model (B): Matrix of correlations

	Violence	Dec	Growth	Income	Pop
Violence incidents	1				
Impact of fiscal decentralization	-0.212	1			
Growth	0.112	-0.149	1		
Income	-0.067	0.068	0.043	1	
Population	0.426	-0.165	0.180	-0.087	1

C.1. State model: Summary statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Violence incidents	294	2.28	2.71	0	19
Expenditure to RGDP ratio	294	0.0949	0.0522	0.0078	0.3367
Locally-generated Revenue to RGDP ratio	294	0.0142	0.0075	0.0020	0.0559
Net Transfer to RGDP ratio	294	0.0835	0.0492	0.0063	0.2667
Rent to RGDP ratio	294	0.0008	0.0013	0.0000	0.0113
Growth of RGDP (in decimal)	294	0.0381	0.0165	-0.0811	0.1020
Income (PC RGDP, Rp)	294	1879248	2687018	557181	26100000
Population	294	1157735	780449	110100	5171465

C.2. State model: Matrix of correlations

	Violence	Exp	LocRev	Transfer	Rent	Growth	Income	Pop
Violence incidents	1							
Expenditure to RGDP ratio	-0.238	1						
Locally-generated Revenue to RGDP ratio	-0.206	0.728	1					
Net Transfer to RGDP ratio	-0.258	0.950	0.674	1				
Rent to RGDP ratio	0.013	0.174	0.186	0.125	1			
Growth of RGDP	0.112	-0.249	-0.018	-0.264	-0.132	1		
Income (PC RGDP)	-0.067	-0.369	-0.216	-0.370	-0.083	0.043	1	
Population	0.426	-0.468	-0.361	-0.490	-0.074	0.180	-0.087	1