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# Decentralization and Regional Inflation in Indonesia

BANK INDONESIA

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## Abstract

The link between decentralization and inflation as one of the key aspects of macroeconomic stability has been surveyed by a number of studies and the findings are generally inconclusive. Using sample data of developing and developed countries, the study found that decentralization correlates with lower inflation in developed countries and vice versa, it correlates with higher inflation in developing countries. The key question is what factors play a role in controlling inflation in a decentralized system. This paper is to argue that the coordination problem is the main issue in controlling inflation in a decentralized system, particularly in developing countries. The empirical analysis is to determine the effect of decentralization on regional inflation in Indonesia and whether institutions play a role in the recent downward trend of inflation in Indonesia. A panel data that includes 33 observations of the Indonesian regions (provinces) is constructed with a dummy variable representing the existence of institution. In addition, this study analyzes whether decentralization supports the convergence in regional inflation and also the pattern of spatial correlation in regional inflation. The assumption is that there are some degrees of collective institutional coordination and cooperation with the establishment of Regional Inflation Task Force (RITF).

*Keywords: Decentralization, Inflation Convergence, Regional Institution*

**JEL Classification:** E31, H73, R12

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# 1 INTRODUCTION

The link between decentralization and inflation as one of the key aspects of macroeconomic stability has been surveyed by a number of studies and the findings are generally inconclusive. When the sample analysis is federal and unitary states, the studies could not find a clear relationship between decentralization and the level of inflation. Hence, using sample data of developing and developed countries, the study found that decentralization correlates with lower inflation in developed countries (King & Ma 2001) and vice versa, it correlates with higher inflation in developing countries (Feltenstein and Iwata 2002). In another study using a large panel data set from several countries, revenue decentralization rather than expenditure decentralization is determined to have a negative association with inflation (Neyapti 2003). The study also found that the size of a country and quality of governance do matter in influencing the impact of fiscal decentralization on inflation.

A number of literatures also focus on certain institutional arrangements that influence the dynamics of price stability in the regions.<sup>2</sup> This is related to the degree of commitment and coordination in the policy making process. Specifically on commitment, the ability of the authorities to renege on promises for stable prices (stable monetary policies) since inflation can have a positive real effect is an issue (Barro and Gordon 1983). Decentralization is seen as a means to restrain the ability of authorities to renege on sound monetary policies because the control over spending is shared between the central and local governments. On the other hand, there are also cases where decentralization results in higher public spending and borrowing, which puts price stability at risk (Campbell et al. 1991). This commitment problem of decentralization is particularly the case in the federal and unitary system of government. In the case of a unitary system of government with some levels of decentralization where monetary policy is still a central domain, the more relevant issue is coordination. Policy coordination is a problem affecting macroeconomic stability in which central and local governments are held responsible. In the literature, the coordination problem surfaces when policy makers need to agree on policies for macroeconomic stabilization, yet, there are problems with collective action and asymmetric

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<sup>2</sup> Some of those studies underline the role of the central bank as the authority of monetary stability and government as the authority of fiscal sustainability. The relationship between those two authorities is what creates macroeconomic stability and with decentralization, the balance of fiscal sustainability and responsibility for macro stability is shared between central and local governments.

information (Alesina and Drazen 1991). Decentralization can make coordination a challenge and make it more difficult to control inflation due to uncoordinated actions or policies and also incomplete information that are crucial in the policy decision making process.

This paper argues that the coordination problem is the main issue in controlling inflation in a decentralized system, particularly in developing countries. This is true when inflation is not only a monetary phenomenon of excess demand in which policies can be coordinated by the central authority (central bank), but also a problem on the supply side. Inflation that arises mostly due to foods price volatility or supply shock is common in developing countries where dependency on import of foods is high and domestic food production could not keep pace with population growth rate. The problem with food availability and affordability in many developing countries is also driven by problems in infrastructure, logistics and distribution chains. A number of policies and programs that aim to ease inflation in the short term or overcome the fundamental factors of inflation in developing countries are ineffective and uncoordinated since in many cases; policies are overlapped between government institutions at the central and local levels. Hence, one of the strengths of a decentralized system is the ability of local governments to identify the needs of their regions. Using this logic, then there is optimism that inflation can be monitored and more controllable in a decentralized system. Local governments have more knowledge and information on the sources and factors of inflation in their respective regions. Furthermore, price stability is also one of the duties of local government in an effort to improve public welfare.

For that particular reason, where decentralization may support local governments to identify the factors of inflation and use policies to overcome the problems related to inflation in their respective regions, then it is expected that there would support stable and low level of inflation and also a process of convergence. Local governments in high inflation regions are expected to make an effort to catch up, by better monitoring and controlling inflation in their respective regions. They may utilize fiscal resources, local regulations and coordination methods to stabilize prices in their respective regions. As an effort to manage regional inflation using institutional approach in Indonesia, the Regional Inflation Task Force (RITF) was initiated. RITF was formed as an inter-agency team whose main task is to closely monitor regional inflation and formulate necessary policies to manage regional inflation. RITF has members from various departments within the local government as well as Bank Indonesia in the regional office.

This paper is to determine the effect of decentralization on regional inflation in Indonesia and whether institutions play a role in the recent downward trend of inflation in Indonesia. A panel data that includes 33 observations of the Indonesian regions (provinces) is constructed with a dummy variable representing the existence of RITF institutions in the full scale model. In addition, this study also analyzes the degree of spatial correlation in regional inflation and examines if there is a spatial pattern of collective institutional arrangements in the decentralized system.

Testing for spatial autocorrelation is considered critical in this study to determine if inflation in a region is influenced by the dynamics of inflation in neighboring regions. As an example, poor infrastructure in several regions could affect distribution of goods for the surrounding regions. Another example is a drought that results in lower harvest in a region which could potentially affect the availability of food in surrounding regions, which could be exacerbated if imports are limited. Local government policies, such as taxes or fees on farm production and distribution, or protective policies on imports, could also impact inflation both in the respective region and also in surrounding regions.

The next section of this paper discusses the theory of spatial correlation and convergence; section three provides data and the methodology, while estimation result and its analysis is presented on section four. Conclusion will be presented on section five and close the presentation.

## **2 THEORY**

### **2.1 Convergence**

Most research on the convergence of inflation rate derived from the experience of the European Union (EU) when it became one of the main topics in post-implementation of the single currency. In general, the phenomenon of inflation convergence in the EU area has not been convincing. A study by Beck and Weber (2001) and also by Holmes (2002) found a convergence rate of inflation after the implementation of the single currency and a common monetary policy in the EU area. Beck and Weber (2001) using the beta and sigma convergence analysis to test regional inflation using sample data 1981-2001. On the other hand, there is also an indication of the divergence in inflation rate after the implementation of single currency in the EU (Honohan and Lane, 2003, Buseti et al. 2006). Furthermore, Buseti et al. (2006) found that the level of

divergence was particularly between the different groups of countries (low and high inflation countries).

Another research on the inflation convergence using Turkey as a case study, indicates the existence of inflation convergence tend to be more significant when the monetary policies was enforced in the centralized setting of government. With so many socioeconomic heterogeneity between regions, it is important to evaluate the differences in inflation persistence, especially if it results in the variation of real interest rates.

A study of inflation convergence in the Asian countries was carried out at five ASEAN countries (Indonesia, Thailand, Malaysia, Philippines, Singapore) plus three big countries: China, Japan, and Korea (Wimanda 2006). The key finding of this study is that during the pre-crisis period, there was an indication of inflation convergence among all countries in the observations, except China and Korea. While in the post-crisis period, the study found that inflation convergence did take place throughout all countries.

Recent literature has sought to examine if the impact of inflation targeting on inflation convergence is significant. Inflation targeting is considered to be effective in reducing the rate of inflation and inflation expectations. Based on this premise, inflation targeting is assumed able to solve the problems of inflation persistence, which usually generates high inflation, and in certain circumstances can also reduce the impact of macroeconomic shocks. Thus, countries adopt inflation targeting will experience a greater decrease in the rate of inflation. The study by Ball and Sheridan (2004) confirms this hypothesis by pointing to the fact that the OECD countries that have adopted inflation targeting, experienced a higher degree of disinflation.

## **2.2 Spatial Correlation**

Spatial autocorrelation evaluates both feature locations and attribute values among observations simultaneously (Cliff and Ord 1973). Given a set of features and an associated attribute, spatial autocorrelation measures and analyzes the degree of dependency in a geographic setting. The pattern of spatial dependency is categorized as clustered, dispersed, or random in which several statistical methods are utilized to measure the degree of spatial autocorrelation. This study uses Moran's I (index) in which the index value is set between -1.0 and +1.0. The Moran's

index value towards +1.0 indicates clustering, while an index value towards -1.0 indicates dispersion. Along with that, a Z score provides an indication of the significance of the index value.

Testing for spatial autocorrelation of regional inflation has not been widely utilized, as far as the author knows. As a general consensus, the concept of inflation is a monetary phenomenon and commonly disregards the influence of spatial correlation. However, in an environment where supply side factor is a determinant of inflation and influenced by local institutions, examining spatial correlation becomes relevant. Moreover, in a decentralized system of governance, many of the supply side factors of inflation are influenced by local government policies and program initiatives. Those local government policies are either directly or indirectly targeting inflation (price stabilization) through fiscal instruments or budgeted programs.

Spatial analyses related to regional inflation were conducted in the European Union (EU) to examine the rate of convergence in economic structures between regions or countries in the EU. The issue was mainly the inflation persistence as there was a tendency that inflation between regions in the EU converged quite slowly towards the target level set by the ECB. Hence, the same aspect is relevant for regions within a single country (Zsibók and Varga 2009). The studies found that while there is a correlation between the inflation rates in different regions, the decomposed inflation rates are quite dispersed.

### **3 METHODOLOGY**

The empirical analysis of this paper is conducted through several stages to determine the dynamics of regional inflation in the era of decentralization in Indonesia. The first stage is to find the nature of the relationship between decentralization and regional inflation and whether there is an indication that inflation between different regions converge. The hypothesis is that local government institutions have an incentive to control inflation in order to improve the welfare of people in their respective regions. In addition, local governments are assumed to know the issues associated with inflation in their respective regions, both from the demand and supply side. Thus, decentralization should correlate with lower inflation and potentially cause regional inflation to convergence, despite various exogenous factors in play, such as the global food crisis that affects the imported supply of food commodities

In the following stage, the analysis will test the degree of spatial correlation in regional inflation. Spatial autocorrelation analysis will also observe if there is an indication of collective institutional coordination and cooperation in controlling inflation. It is assumed that neighboring local governments collaborate to control inflation through activities such as cooperating to ensure the availability and adequacy of goods by establishing a logistical center. The importance of collaboration between local governments is also the main goal of establishing RITF. This study is to determine the role of RITF as an institution that focuses on coordination and collaboration to control regional inflation in Indonesia.

In order to determine the correlation between decentralization and regional inflation, this paper constructed two indicators that are a proxy for decentralization. The first one is the fiscal decentralization ratio, which is a ratio of regional (provincial) spending over total national spending. The second indicator is the index of local government performance. The index of local government performance is essentially an efficiency score of local government's expenditure, calculated using Data Envelopment Analysis (DEA) method.<sup>3</sup> The panel data includes 26 regions (provinces) with the year of observation from 2003 - 2008. Due to data limitations, observation from year 2001 and 2002 cannot be included. The timeframe for the observation in this study represents a period before RITF was formed and therefore, the finding is expected to validate the factual dynamics between decentralization and regional inflation.

A correlation test between fiscal decentralization ratio and regional inflation rate does not provide evidence of strong correlation. However, the sign of the correlation itself is positive, which

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<sup>3</sup> Data Envelopment Analysis (DEA) is a non-parametric method to measure the relative performance of several Decision Making Units (DMUs in this exercise are the local government entities). The performance of DMUs is measured in terms of relative efficiency when it references a set of units that are being compared to each other. Efficiency of a DMU is computed as the ratio of output produced to input consumed with certain weights ( $\Sigma$  weighted outputs /  $\Sigma$  weighted inputs). The DEA model allows each DMU to maximize the weight multipliers. The weights of inputs and outputs for each DMU vary until the model reaches the best possible combination. The model constructs an efficient production frontier from those observed inputs and outputs. The resulting efficiency index is relative to the DMU's sample observed and the set of weights have to be accounted for other units of assessment in which none of them have an efficiency score greater than one.

Based on the literatures, the performance of government institutions is mainly driven by the analysis of spending or expenditure efficiency (Herrera and Pang, 2005 as followed in the study on fiscal decentralization and state allocative efficiency by Tirtosuharto, 2010). Efficiency index in this study is calculated in the DEA model with capital expenditure and current expenditure as the input variables, while Gross Regional Domestic Product (GRDP) and investments as the outputs. The Granger causality test confirms the direction causality effects from the local governments spending to the GRDP and investments. The efficiency index (score) is included in the exhibit and for a more detail theory and methodology on constructing the efficiency index adopted in this paper, the reference is the study on fiscal decentralization and state allocative efficiency by Tirtosuharto (2010).



indicates that a higher degree of fiscal decentralization ratio correlates with higher regional inflation rate. This also implies that by giving more power to govern to the local governments and an authority to use all means and resources in their respective regions may not actually have a positive impact in controlling inflation in the regions. Based on the literature, a larger contribution of government spending (a higher degree of fiscal decentralization) could potentially cause higher inflation, particularly when the spending is directed toward unproductive programs or activities. In addition to wasteful spending, rising debt, corruption and rent-seeking may also increase inflation since it potentially boosts the growth rate of money supply. Public sector corruption and graft in Indonesia's regions after decentralization is believed to be the contributor of inefficient allocation of resources including the capital budget for infrastructure development. These explain the finding of positive correlation between fiscal decentralization and regional inflation.

The institutional measure of decentralization in this study is the index of local government performance. This index is associated with the degree of efficiency in the utilization of public expenditure. The assumption is that the more efficient local governments are in allocating their expenditure that reduces the amount of wasteful spending, there is a probability that inflation rate will be lower. With power over budget and policy making, the quality of local governments is assumed to play a crucial role in controlling inflation through programs that can solve the supply side problems. The sign of correlation between the index of local government performance and regional inflation rate is negative, which implies that efficiency of local governments in utilizing public expenditures could lower the regional inflation rate as expected.

To examine the effects of fiscal decentralization and local government performance on regional inflation rate, a panel data analysis is constructed with data from 26 provinces from 2003 to 2008. The dependent variable is regional inflation rate ( $\pi$ ) and the independent variables in the log expression are: the ratio of fiscal decentralization ( $FD$ ) and the index of local government performance ( $LG$ ). The control variable is the regional population ( $P$ ), which is a proxy indicator for the size and scale of the regions. The following equation (1) is the expression of the relationship between regional inflation rate and variables of decentralization:

$$\pi_{it} = a + b \ln FD_{it} + c \ln LG_{it} + d \ln P_{it} + u_{it} \quad (1)$$

The convergence analysis in this paper is to test if the inflation gap between regions becomes narrower. Among a number of methods for testing convergence, Sigma ( $\sigma$ ) and Beta ( $\beta$ )

convergence test are considered the most common. The hypothetical assumption is that local governments would make more effort to control inflation by implementing fiscal and other policy measures as low inflation would raise welfare of the people in their respective regions. Thus, it is expected that regional inflation will converge into a steady state.

Sigma ( $\sigma$ ) convergence test uses standard deviation of regional inflation over period of years and analyze its dispersion. Beta ( $\beta$ ) convergence estimates the growth of regional inflation rate of a certain period of time on its initial level (base year). The  $\beta$  convergence test can be expressed in the following equation:

$$\log(\pi_{it}/\pi_{i,t-1}) = a + \beta \log(\pi_{i,t-1}) + u_{it} \quad (2)$$

$\pi_{it}$  : inflation rate in region  $i$  (1, ... N) at time  $t$ ,

$\pi_{i,t-1}$  : inflation rate in region  $i$  (1, ... N) at time  $t-1$ ,

$a$  : initial regional inflation rate

$\beta$  : rate of convergence

## 4 RESULT AND ANALYSIS

### 4.1 Regional Inflation in Indonesia

Recalling Indonesia's geographic characteristic as a vast archipelago with regional interdependency on supplies, consequently results in a higher dependency on distribution and transport systems to ensure the adequacy and continuity of supply. Smooth distribution ensured adequacy and continuity of supply in many regions. Improvements in Indonesia's distribution system were a result of the growing transport services<sup>4</sup>. However, inflation disparity among regions remains a challenge for the country. Inflation in many regions outside Java tends to be higher than in Java and even more fluctuating.

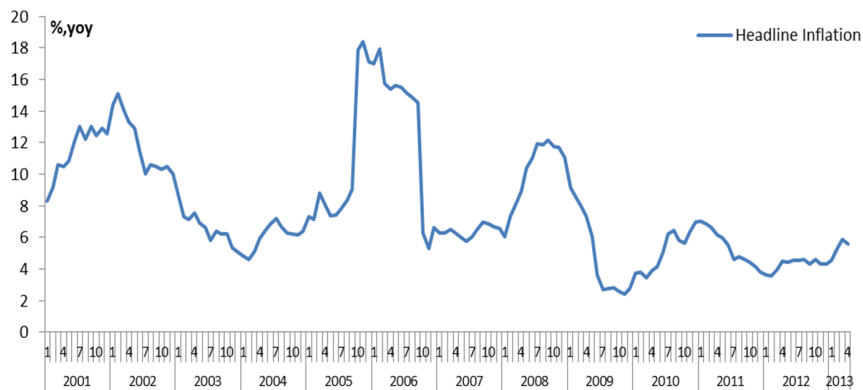
Between 2001 and 2012, the rate of inflation in Indonesia has shown a declining trend. And in the last five years, headline inflation in Indonesia fell from 6.6% in 2006 to 4.3% in 2012

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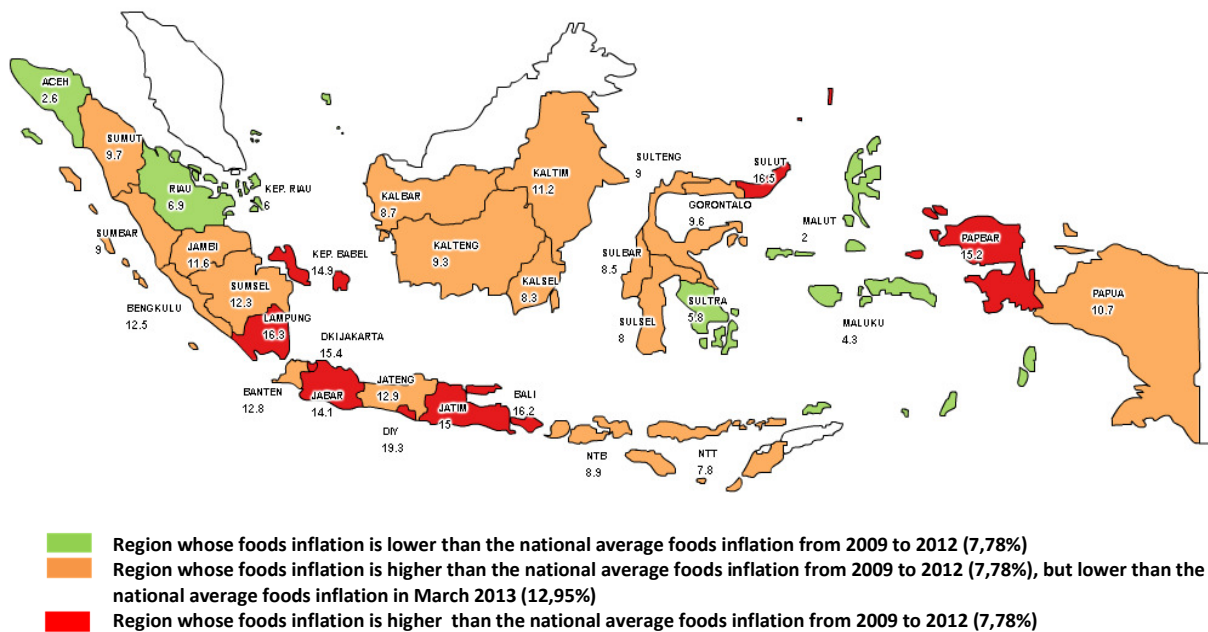
<sup>4</sup> The national shipping fleets, which mostly serve domestic freight, experienced a 7% growth in 2012 over the previous year. In addition, the number of sea freight license holders also increased. Source: Ministry of Transportation, October 2012.

(Figure II.1). A significant decline in inflation took place in the food components from 10.7% in 2006 to 5.7% in 2012, while inflation in the non-food components only fell from 3.9% to 3.2% for the same period. Hence, food prices in Indonesia were higher and more volatile than neighboring countries as there have been frequent disruptions in food supplies and distribution.

**Figure II.1. Indonesia's Headline Inflation Rate, 2003 - 2012**



**Figure II.2. Regional Inflation in 2012**



A declining trend in national inflation rate is supported by a downward trend of inflation rate in various regions in Indonesia (Figure II.1). Inflation outside of the Java region in particular has dropped substantially over the past couple of years. Inflation in the Sumatera region is even

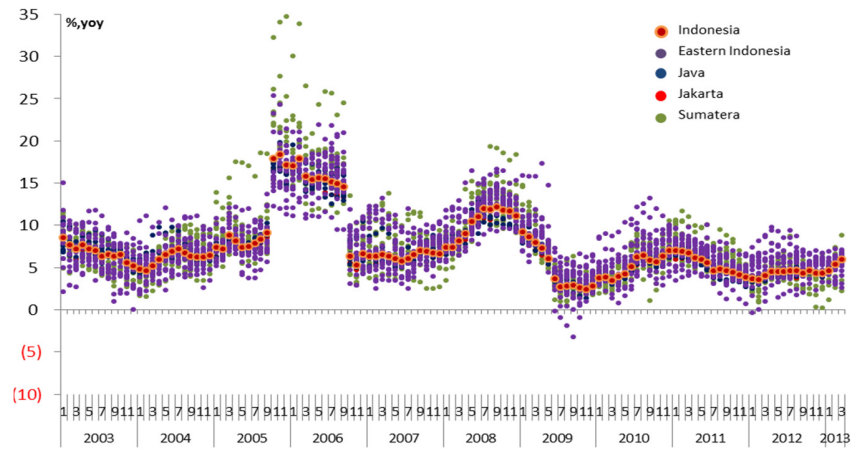
now closer to the national inflation rate. Inflation rate in the Eastern Indonesia region also showed a downward trend, although its inflation rate is still consistently above the national inflation rate.

The main factors that contribute to a higher inflation rate in the Eastern Indonesian region is the high transportation (distribution) and logistical costs of goods. Meanwhile, inflation rate in Java and Jakarta is historically inline and also nearer to the national inflation rate due to the contribution of inflation from those two regions that stands at 65%. The Java region is also the center of distribution of goods with large scale retail chains that drives competitive prices. Moreover, the infrastructures in these two regions are much improved than other regions and also more integrated. Hence, the demand pressure is higher in the Java region compared to other regions since it is the most populous region and has the fastest rising middle class in the country.

Despite the fact that inflation is a monetary phenomenon where demand-pull factor is dominant, a number of literatures have stressed the supply side factor on regional inflation that mostly took place in developing countries (Hossain 1996, Mohanty & Klau 2001, Brodjonegoro 2004). This non-monetary factor is driven by the cost-push of goods and services due to the availability, adequacy and affordability of supplies. This supply-side inflation has been an issue in controlling regional inflation in Indonesia in recent years. As part of an initiative to monitor and control inflation in the regions, particularly inflation that is caused by the cost-push factor, RITF was formed as a collaborative effort between central and local governments. This institutional approach to control inflation may not be uncommon in developing countries where coordination and collaboration between local jurisdictions is still an issue.

Looking closer at the co-movement of inflation among provinces within the four regions (Eastern Indonesian, Java, Jakarta and Sumatera), there is still a significant disparity. Provinces in the Sumatera and Eastern Indonesian regions have wider disparity compared to other regions, (see Figure 5). This disparity is clearly visible during the period of inflation shock in 2005 and 2008 that was caused by the government decision to increase fuel prices. Inflation disparity remains a challenge in controlling inflation, which requires more thorough consideration from policymakers to take into account the differences or implications of their policies related to managing different aspects of inflation in their respective region.

**Figure 5. Disparity of Regional Inflation, 2003 - 2012**



## 4.2 Impact of Fiscal Decentralization on Regional Inflation

The finding in Table 1 confirms that a higher degree or ratio of fiscal decentralization is correlated with a higher regional inflation rate due to spending inefficiency. The result of the panel data regression implies that a one percentage point increase in the ratio of fiscal decentralization will increase the regional inflation rate by approximately 0.65 percentage point for the whole sample. The ratio of fiscal decentralization’s coefficient has the expected positive sign and it is significant at 5 percent. On the other hand, the model does not imply a significant relationship between the local government performance and regional inflation rate, although variable local government performance has a negative sign on the coefficient as expected.

**Table III.1. Panel Data of Decentralization and Regional Inflation in Indonesia**

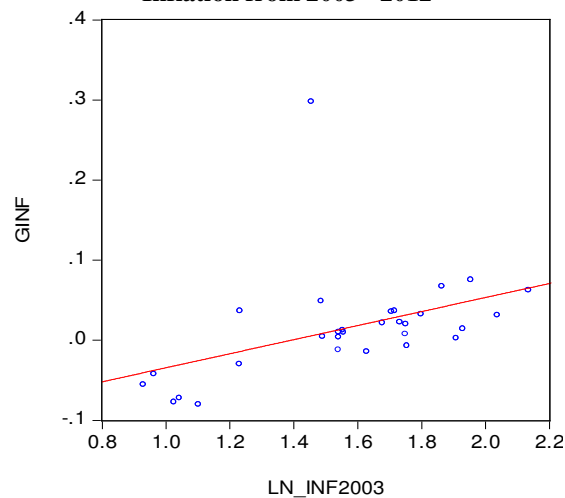
Dependent Var:	Regional Inflation Rate		
Independent Var.	Coefficient	Std. Error	t-Statistic
Log Fiscal Decentralization	0.645	0.270	2.39*
log Local Government Performance	-0.393	0.292	-1.35
Log Population	-0.461	0.272	-1.69
Log-Likelihood	40.17		
R-squared	0.08		

Note: \* The point estimate is significant at the 5% (0.05) level.

### 4.3 Convergence Analysis

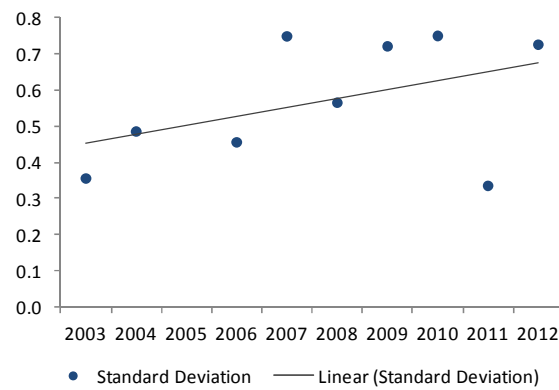
Before statistical examination using regression is performed to test Beta convergence, a scatter plot is generated to test the existence of convergence graphically. The scatter plot is shown between the logarithms of regional inflation in the base year (2003) on the x-axis and the logarithms of the regional inflation over the period from 2003 to 2012 on the y-axis.

**Figure2. Scatter Plot between Regional Inflation in the Base Year (1997) and the Growth of Regional Inflation from 2003 - 2012**

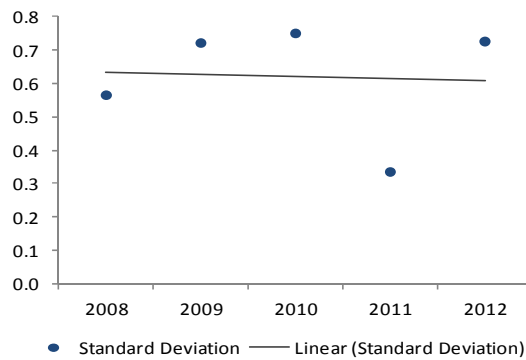


From the scatter plot, a positive sloped line can be observed, which means that there is a positive relation between the regional inflation in the first observed year (the base year) and the growth of the regional inflation over the entire observed years. Thus, there is no indication of the presence of convergence. This result is supported by the Sigma ( $\sigma$ ) convergence test that uses standard deviation of logarithms of GRDP per capita and measures the dispersion among standard deviations of regional inflation over period of years. The result indicates that regional inflation convergence did not take place during the period of observation from 2003 to 2012. If the year of observation is changed from 2008 to 2012, which coincides with the establishment of RITF, there is an indication of convergence although the process of convergence is slow.

**Figure 3.  $\sigma$  Convergence of Regional Inflation, 2003-2013**



**Figure 4.  $\sigma$  Convergence of Regional Inflation, 2008-2012**



The results of the Beta convergence test as shown in Table 2 indicates that the parameter of the convergence is positive and significant or there is no indication of convergence in regional inflation. When the same analysis is performed using 2008 as the initial year, which was the year when RITF established, the parameter of  $\beta$  convergence is negative but not significant (Table 3). In other words, there is an indication that institutions (RITF) play a role in supporting the catching-up process of regional inflation convergence in Indonesia.

**Table III.2. Unconditional  $\beta$  Convergence of Inflation Rate, 2003 – 2012**

Dependent Var: Growth of Regional Inflation Rate			
Independent Var.	Coefficient	Std. Error	t-Statistic
<i>B</i>	0.088	0.035	2.50*
Constant	-0.122	0.056	-2.17
Log-Likelihood	42.10		
R-squared	0.18		

Note: \* The point estimate is significant at the 5% (0.05) level.

**Table III.3. Unconditional  $\beta$  Convergence of Inflation Rate, 2008 – 2012**

Dependent Var: Growth of Regional Inflation Rate			
Independent Var.	Coefficient	Std. Error	t-Statistic
<i>B</i>	-0.175	0.134	-1.30
Constant	0.223	0.328	0.68
Log-Likelihood	22.39		
R-squared	0.06		

Note: \* The point estimate is significant at the 5% (0.05) level.

#### 4.4 Spatial Correlation

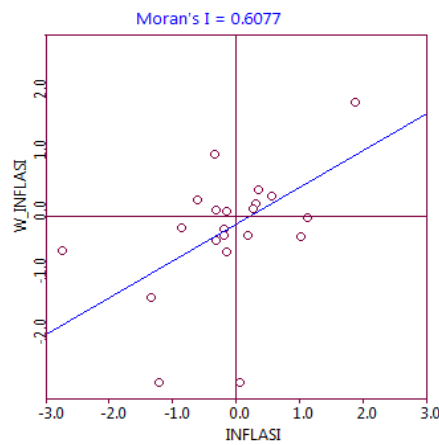
The spatial autocorrelation model using Geoda application demonstrates a relatively high spatial autocorrelation of regional inflation in Indonesia. The Moran's Index is at +0.6, which indicates a clustered condition of regional inflation. This finding may be driven by the geographic condition of Indonesia as an archipelago nation, where the structure of the economy is clustered within the Sumatera, Java (including the capital city Jakarta), Bali and Nusa Tenggara, Kalimantan, Sulawesi, Maluku and Papua.<sup>5</sup> With this clustered geographic condition, a number of issues related to inflation arise, such as the prices disparity of a number of food commodities. Several factors play a role in determining the prices of food commodities, which eventually affect inflation rate in specific regions. The structure of supply chain, domestic production, quality of infrastructure and local tax or fees associated with the distribution of commodities are among others factors that influence the disparity of food prices. A survey by Bank Indonesia on foods resiliency in 2012 found that differences in transportation costs (transaction costs), input costs, level of incomes and foods supplies (both from domestic production and import) is statistically significant in explaining the disparity of regional food prices. The distance to Java regions as the main distribution center does matter in determining the transaction costs. Moreover, the quality of infrastructures in Java and Sumatera regions is relatively better compared to the Eastern Indonesian region.

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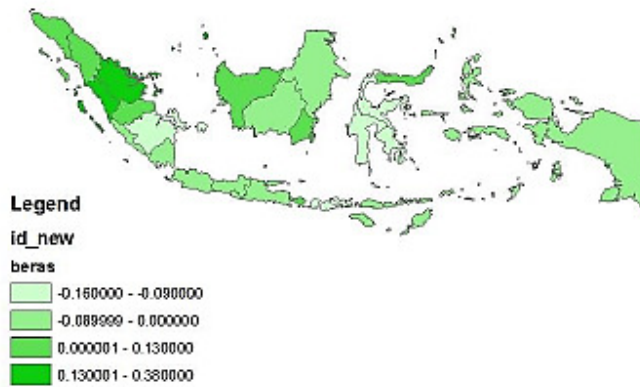
<sup>5</sup> The Eastern Indonesian region consists of Kalimantan, Bali and Nusa Tenggara, Sulawesi, Maluku and Papua.



**Figure 1. Moran's Autocorrelation**



**Figure 6. Disparity of Regional Rice Prices, 2012**



Note: Variable Regional Inflation, 2008  
Source: Survey of Foods Resiliency (Ridhwan et.al., 2012b)

#### **4.5 Institutional Impact on Regional Inflation**

The last empirical test in this paper is to determine whether RITF has a negative correlation with the volatility of inflation. It is expected that the coordination and cooperation between regions in controlling inflation improved after the forming of RITF due to better awareness of local governments towards inflation problems in their respective regions.<sup>6</sup>

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<sup>6</sup> Multi departmental and sector coordination is the focus of RITF in controlling the volatility of regional inflation since a lot of issues in controlling regional inflation are caused by the lack of coordination and collaboration within the internal departmental of local governments. Although RITF is commonly engaged in the formulation of policy to control inflation, there are some cases where RTIF are directly involved in supporting programs that aim to control inflation. Such program would be the development of regional information center for market prices, particularly for food commodities. In term of coordination between RITF and central government agencies, a national coordination meeting is held annually. In addition, a national coordinating committee (National Inflation Task Force or NITF) is also established to strengthen the communication, coordination and collaboration between RITF and central

**Table III.4. Panel Least Square of Regional Inflation, 2003 – 2012**

Dependent Var:	Regional Inflation Rate		
Independent Var.	Coefficient	Std. Error	t-Statistic
C	5,341	0.611	8.74*
Dummy_RITF	-1.062	0.912	-1.16
Dummy Fuel Shock	7.319	1.235	5.92*
Global Commodity Prices	0.051	0.022	2.24**
Log-Likelihood	-90.68		
R-squared	0.72		

Note: \* The point estimate is significant at the 1% (0.01) level.

\*\* The point estimate is significant at the 5% (0.05) level.

Panel Least Square regression with a 10-year observation data from 2003 – 2012 is used to measure the possible contribution of RITF on controlling inflation volatility in their respective regions. Inflation volatility as a measure of standard deviation of province's monthly inflation rate is considered a proper way to analyze the contribution of RITF in controlling inflation. Variable dummy RITF is accounted for a 4-year establishment of RITF, beginning in 2009. The sample observation includes four provinces (West Java, North Sumatera, South Sulawesi and East Nusa Tenggara) that were awarded for their accomplishment in controlling inflation in 2011 and 2012. As the control variables, dummy fuel adjustment shock and percentage growth in weighted global commodity prices are included in the model. High inflation in Indonesia, driven by a price increase in subsidized fuels by government, occurred in 2005 and 2008. Weighted global commodity prices are constructed from the global prices of five main food commodities that affected greatly to Indonesia.

The result shows a negative correlation between independent variable dummy RITF and dependent variable inflation volatility. Hence, the relationship between those two variables is not significant and therefore, the coefficient cannot be interpreted. This finding is consistent with previous analysis that shows insignificance of the correlation between local government and regional inflation. The fact that the contribution of RITF in controlling the inflation cannot be fully determined indicates that other factors play a role. Along with that line of thought is the extent of shock from tradable inflation. There is a limitation of what RITF can do to control inflation when there is a price shock in tradable goods and services, due to the dynamic of global commodity

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government. Bank Indonesia has actively participated in both the NITF and RITF as part of an effort to meet the inflation target.

supply and demand. In the model, shock from fuel prices increase and rising global commodity prices have a positive correlation with inflation volatility as expected. The dynamics within institutions in terms of policy assessment, coordination and implementation also has an effect on the effectiveness of RITF in controlling inflation.

## **5 CONCLUSION**

The main contribution of this paper on the issue of decentralization and regional inflation is the inclusion of institutional variables in determining the dynamics of regional inflation in the era of decentralization in Indonesia. This paper finds that decentralization does have an impact on regional inflation in Indonesia, where an increase in the degree of fiscal decentralization also increases the volatility of regional inflation, due to among others are the inefficiency in local government expenditures. Although the variable of local government performance is not significant, the negative correlation between variable local government performance and regional inflation rate is as expected. Thus, to some extent, institutions do play a role in controlling inflation in the regions. In addition, there is also an indication that institutions have a role in reducing the disparity of regional inflation in Indonesia, although convergence in regional inflation rate is not observed in this study.

From a spatial perspective, there is evidence of high spatial autocorrelation of regional inflation in Indonesia. There is also a strong indication of the lack of coordination between regions (local governments) in controlling regional inflation before the forming of RITF. Hence, the degree of contribution of RITF in controlling inflation volatility cannot be determined, although the nature of the correlation is negative, as expected.

The finding of this study does not merely overrule the role of institution (RITF) in controlling regional inflation in Indonesia. With part of the problems with inflation in the Indonesian regions is in the supply side, coordination and cooperation within institutions both in the local and central level is crucial. In the future, RITF should prioritize the formulation of long term policy to control inflation since it would resolve the major or structural problems of regional inflation and result in a more stable inflationary environment in the regions. Hence, the role and contribution of RITF is also influenced by how this institution is setup and structured in each region, which affects the dynamic of coordination and policy formulation to control regional

inflation. It is also acknowledged that the effectiveness of RITF in controlling regional inflation also depends on the commitment of local leaders and cooperation among neighboring jurisdiction and with central government agencies.

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