Session 4.C

The 6th IRSA INTERNATIONAL CONFERENCE
13-14, August, 2004, Jogjakarta, Indonesia

SPATIAL DYNAMIC OF SMALL AND MEDIUM ENTERPRISES IN THE RECENT ECONOMIC CRISIS

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Abstract

This article discusses the spatial dynamic of small and medium enterprises (SMEs) in Indonesia during the crisis (1998-2000), focusing on the SMEs without legal entity, except agriculture activities. The spatial distribution of SMEs seems increasing which measured by Herfindahl index applied on employment and number of establishment. The study also applies an econometric approach to investigate the determinants of SMEs' employment. The findings of empirical analysis are that the regional output (GDRP) and population have positive impact on the employment while regional minimum wage (UMR) have an opposite impact. This study confirms previous studies that SMEs in Java more severe than in other provinces.

Keywords: small-medium enterprises, economic crisis, spatial dynamic.

INTRODUCTION

One of advantages of small and medium enterprises (SMEs) that relevant to the Indonesian situation during the recent economic crisis is their flexibility rather than large firms (Berry, et.al, 2001). It is interesting if the aspect of flexibility is related to Akatiga (Berry et.al., 2001) findings based on the survey in West Java, Central Java, Yogyakarta, North Sulawesi and North Sumatra. Akatiga found small enterprise in Java during the crisis is more severe rather than off Java and the small enterprise in urban is also more severe rather than in rural. Akita and Alisyahbana (2002) show economic contraction in Java is bigger than other areas in Indonesia. At the same time, the social impact of the economic crisis tend to concentrate most in urban area and Java, also in some provinces in Eastern Indonesia region (Watterberg, et.al., 1999).

This article examine the spatial distribution of SMEs during the crisis and will also estimate the impact of the crisis on the SMEs performance. The data source of SMEs is *Profil Usaha Kecil dan Menengah Tidak Berbadan Hukum Indonesia* in 1998 and 2000. This data can be used to reflecting the informal sector, even though not in the fully manner (www.bps.go.id). However, since agriculture activities are not surveyed, this data perhaps more reflecting the SMEs in urban area, considering a large part of agricultural activities exist in rural area.

SMEs SPATIAL DISTRIBUTION

This article use employment and the number of establishment in order to measure the spatial distribution of SMEs. Other study by Sjöberg & Sjöholm (2002) applied employment and value added to avoid bias conclusion due to different spatial distribution of different industries. They argue that region with more capital intensive production will have large share of value added whereas region with more labor intensive manufacturing will have large share of employment. Since the characteristic of SMEs generally is labor intensive, perhaps bias conclusion can be tolerable (Kuncoro, 2000a).

Table 1 shows the spatial distribution of SMEs in 1996-2000 measured by employments and number of establishments. Similar to the case of large and medium manufacturing industry, Java shows a strong domination in the distribution of SME establishments. In 1996, Java contributed about 66 percent of SMEs. The domination of Java increased to 68 percent in 2000. This development indicates the recent economic crisis increase the domination of Java the spatial distribution of SMEs although not substantial. In this island, only DKI Jakarta tends to have declining share in SMEs, while Central Java has increasing rate continuously. Beside Java, only two provinces that has relatively

substantial share of SMEs establishment are North Sumatra and South Sulawesi.

Table 1
Spatial Distribution of SMEs, 1996-00

Island	Number of Estalishment (%)				Employment (%)			
	1996	1998	1999	2000	1996	1998	1999	2000
SUMATERA	16,4	16,2	15,0	14,9	17,0	17,3	16,0	15,6
JAVA	65,9	66,2	67,9	67,7	64,6	64,5	66,1	66,0
BALI & NUSA TENGGARA	4,9	5,0	5,2	5,8	5,1	5,2	5,3	6,1
KALIMANTAN	5,0	5,0	5,1	4,8	5,2	5,2	5,6	5,5
SULAWESI	6,7	6,5	6,4	6,5	6,8	6,5	6,6	6,5
MALUKU&PAPUA	1,1	1,1	0,4	0,3	1,3	1,3	0,4	0,4
TOTAL	100	100	100	100	100	100	100	100

Table 1 also shows Java domination in the spatial distribution of SMEs' employments. Table 1 shows that the economic crisis decreases the share of Java, but starting from 1998 the share of Java increases up to 66 percents at 2000.

The development of regional distribution of SMEs also can be measured by the spatial concentration index. The measurement of spatial concentration Herfindahl index will be applied in number of establishment and employment. This index is also used by Sjöberg & Sjöholm (2002) in the case of Indonesian manufacturing industry 1980 and 1996. SMEs Herfindahl index is presented in Table 2.

Table 2
Spatial Concentration of SMES (Herfindahl Indexes), 1996-00

YEAR	HERFINDAHL INDEX	
	Number of Establishment	Employment
1996	0,126	0,120
1998	0,127	0,119
1999	0,133	0,126
2000	0,132	0,125

In 1996, before the economic crisis, the spatial concentration level of SMEs establishment is 0.126. As a comparison, the Herfindahl index of Indonesian manufacturing industry in 1996 is 0.190 (Sjöberg & Sjöholm, 2002). In 1999 the spatial concentration index of SMEs increase to 0.133 and relatively constant until 2000. Based on the employment data, the spatial concentration index also tends to increase although in different pattern for 1998. These indexes perhaps indicate the impact of recent economic crisis on the spatial concentration of SMEs in Indonesia.

DETERMINANT OF SMEs SPATIAL DYNAMICS

Model

This part is a preliminary effort to identify the determinants of SMEs's spatial dynamics in Indonesia. In this effort, specification of the model will be based on above discussion that indicates the impact of recent economic crisis on the SMEs' performances. The performance of SMEs is measured by employment. GDRP will be applied as an indicator of regional economic performance that also represents the factors behind the demand of labor, including the SMEs' labor. However, several previous studies found mixed conclusion on the relation between income and employment. In the case of manufacturing industries in Indonesia, Kuncoro found that GDRP and population variables influence the regional specialization (Kuncoro, 2002b). In contrast, Suryahadi et al conclude the impact of GDRP on the demand of labor in formal sector in urban area (Suryahadi, et al, 2003).

Other variable that is interesting to be tested its relation to the SMEs spatial dynamics is wage, which in this case is the regional minimum wage. Similar to income variable, there is also empirical controversy on the impact of wage variable on the employment. In his study, Kuncoro applied labor cost as indicator of labor market (Kuncoro, 2000b). Theoretically, firms prefer location with low wage to minimize labor cost. However based on his empirical estimation Kuncoro found that wage positively affect regional specialization index. The explanation of this finding is firms may pay higher for skilled labors. In the case of urban formal workers, minimum wage has negative impact significantly (Suryahadi, et al, 2003). High wage causes some workers; particularly women, young workers, and low educated workers cannot apply on the formal sector and run to the informal sector though they must receive low income and bad working condition. In other word, minimum wage policy tends to benefit the white-collar workers who generally have better skill and education.

Based on the above discussion, it can be formulated the SMEs spatial dynamics model as follows:

$$\mathbf{LogE = á_1 + á_2 LogY + á_3 LogP + á_4 LogRMW + á_5 DJ + e}$$

Where E is employment of SMEs, Y is the real GDRP, P is population, RMW is regional minimum wage, and DJ is the dummy variable of the provinces in Java.

Data

The data used in the estimation covered the period 1998-2000 for 26 provinces. Since data of Maluku is not available, the panel data available are 76 observation units. The estimation of the panel data uses Ordinary Least Square (OLS). To complete the analysis, after use employments as

the dependent variable, it is also important to use the ratio of employments to the number of establishment. Estimation results are presented in Table 3.

Estimation result

Table 3 shows significant positive relationship between GDRP and both indicators of SMEs performance. It means economic contraction decrease the employment absorption ability of SMEs as also seen on the average employees per SME establishment. Contrary to Suryahadi et al (2002), this estimation shows population variable have positive coefficient significantly. These findings indicate the important role of non-agricultural SMEs due to the limitation of formal sector to absorb labor force especially in the crisis periods. However, the ability of this SME in absorbing labor force is not sufficient as reflected by the negative relationship between population and average employees per SME. In the fact, more than 80 percents of these non-agricultural SMEs are the unpaid employees.

Table 3
Estimation Results

Independent Variables	Employment - Total		Employment- Average	
	Without Dummy Java	With Dummy Java	Without Dummy Java	With Dummy Java
Constant	-0,32	0,26	0,51	0,16
	(-0,40)	(0,34)	(0,58)	(0,18)
LogY	0,28*	0,23*	0,12***	0,15**
	(5,03)	(4,15)	(1,91)	(2,34)
LogP	0,77*	0,71*	-0,26*	-0,23*
	(13,37)	(12,39)	(-4,22)	(-3,50)
LogRMW	-0,51**	-0,43**	0,32	0,27
	(-2,90)	(-2,51)	(1,66)	(1,39)
DJ	-	0,16*	-	-0,09
		(3,21)		(-1,66)
Adj. R2	0,92	0,93	0,30	0,31
F (4,71)	-	247,83	-	9,54
F (3,72)	29,68	-	11,52	-

t-statistics are in parentheses
*) significance at 1% level
**) significance at 5% level
***) significance at 10% level

Other important finding is negative coefficient of regional minimum wage variable (RMW) that contrary to the initial prediction of its impact on the employments variable. As already known, the regional minimum wage policy is addressed to pay workers meanwhile largely of SMEs workers are unpaid workers. Therefore, this finding also represents the relationship between wage and urban informal sector. Economic activities in this sector include trading, restaurant and accommodation service; home industry and handicraft; financial institution, real estate, rental and services that tend to exist in urban area. In spite of the higher level of RMW brings positive and significant impact towards the average of SMEs workers.

There is a different behavior between SMEs in Java and off-Java. Dummy variable of Java provinces gives positive and significant effect on the employment. This finding indicates SMEs in Java provinces during the crisis more suffer than SMEs in off-Java. However, table 3 show there is no significant difference between Java and off-Java based on the average employees.

CONCLUSION

SMEs in Indonesia are still concentrated in Java. There is an indication that the SMEs spatial concentration becomes strong since the economic crisis comes to Indonesia. Based on the estimation result, this article found the impact of regional economic performance, population, and regional minimum wage on the spatial dynamics of SMEs. Another finding is SMEs in Java have suffered more than other islands in Indonesia.

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