



# An Investigation into The Role of Small Scale Industry in the Indonesian Economy

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## **Abstract :**

**Purpose.** *The purpose of this paper is to report the result of a study aimed at the role of small scale industries (SSI's) in Indonesia. It is occupied by 240 million, more than 350 ethnics dispersed in 7,508 islands, consists of a mixed population of Muslims, Hindus, Buddhist, Christians, and animists, which has created many kinds of cultural. These may have effect to the survival of the SSI's.*

**Design/methodology/approach.** *Data were collected from metalurgical and automotive industry in Java island. System approach and multiple regression were used to analysis the relationship between small, medium and large scale industry.*

**Findings.** *The result of the study indicates that the role of the SSI's can be developed by linking to the Indonesian cultural. The uniqueness of the cultural should be packed becoming a product that may be sold in the form of its tourist industry. It may develop many businesses, both the large and especially the small one, and the relationship between them can be established.*

**Research Limitation/implications.** *The study based on the data collected within automotive industries might be less representative to reflect the development of the SSI's throughout industries. Additionally, the data collected might be small in number to make a general conclusion.*

**Originally/value.** *This study has contributed to communication developing between the SSI's and the LSI's based on sistem approach which involve the cultural environment.*

**Keywords.** *System, quality, productivity, technology, information exchange, co-operation, SSI's, LSI's, government's role, cultural.*

## **INTRODUCTION**

Indonesia had entered Asean Free Trade Association (AFTA) 2003 and then Asia Pacific Economic Cooperation (APEC) 2020. In this globalization era, any product resulted by Indonesian will compete with that of the other countries. Local market is no longer exist and it would be replaced by international market (Lummus at. Al., 2005). Competitive advantage is absolutely condition to survive, and this ability is always questioned to Indonesian product. On the other side, Indonesia is facing a complicated problem regarding with social gap as the effect of income distribution which has created various kinds of social problems. Small Scale Industries (SSI's) seems as an important role to overcome this problem.

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In regard to economic development, Indonesia has many resources both in the form of natural and culture. Its nature content rich in mineral such as natural gass, petroleum, iron ore, gold, diamond, and the others mineral. Its nature beauty is occupied by more than 350 ethnic communities that has distinctive customs and cultures. These natural resources can be produced as raw material needed to company's operate is available (Cousins, Paul D., at al, 2008) both in the form of manufacturing and tourism.

By improving its quality, tourists would come in Indonesia and bring in money for testing regional cuisine, for souvenirs, accommodation, travel, sleeping in traditional cottages, and the other products. All these products would be created by the MSI's and the SSI's. Those would be produced by the LSI's. As Indonesian economy can be supported by SSI's, MSI's and LSI's then system approach could be developed to establish the interrelationship between them.

### **Literature and Hypotheses development**

A system as a collection of people, resources, concepts and procedures intended to perform an identifiable function (Turban, 1990; Webster, 1997). It is comprised of elements which interacts each other, either in the form of smaller activities or a large one. Its activities are classified into input side, transformation process, and output side (Monk, 1982). The input side absorbs anything needed such as raw material, energy, people, information or others thing which has also been resulted by the other systems. Those are then transformed becoming output in the form of goods, or services which is finally distributed to the society. So, a system could be in the form of smaller one, such as a firm within an industry, or a bigger one such as an industry, or even an extremely big in size such as a solar system (Bach, 1994).

All various industries of state such as textile, chemical, metallurgical, mining industry and others are the subsystems of industrial department, while the companies classified within the industry are sub-systems of the industrial system. These systems furthermore may be subdivided into smaller elements. Eventually, the terms system or subsystems are dependent upon the level of analysis. In the context of a company, the departments of that company represent a subsystem. But in the context of an industry, the companies within the industry represent a subsystem.

Interdependence between system or sub-system can be seen clearly within the stage of processing. In the textile industry, for example, the processing stage can be separated into: spinning mills, weaving, finishing and dyeing, with the garment as the end of the product. If one of the processing stages fails, the other processing stages, either the next stage or the previous stage will have to be stopped. Dependence upon an activity can be not only the physical product but also on 'non physical products', i.e. activities performed by a company department. Dependency upon activities can even

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appear as mutual activities between two departments, where X is dependent on Y, and the opposite Y is also dependent on X.

Three varieties of interdependence may be classified within a system, i.e. pooled, sequential and reciprocal interdependence (Thompson, 1967). Pooled interdependence exists where organizational units do not depend upon one another to carry out their day-to-day work. But, it depends on the adequate performance of each working-unit (Prayogo, 2008) for ultimate survival. The objective of a marketing subsystem is different from that of the production subsystem, and differs again from that of the financial subsystem. Each of them is not interdependent in achieving their objectives, but if one of them fails to achieve each objective, the company's objectives would fail to be achieved. In sequential interdependence, the activities of the production unit must be put into action before the next stage can be processed. The successful operation in the final process is dependent on the previous process, if one of those stages did not work well, the product created would not be of good quality. Finally, reciprocal interdependence would appear when two different operational units are involved within a give-and-take relationship. The output of an engineering department, for instance, is to keep a machine in order to be ready for use. This output would be sent to the production department to process materials but, if the machine was inoperable, it would be an input for the engineering department, because it would be repaired.

This interdependence will always appear within any activities either in the form of bigger activities or smaller activities. The dependence of a company upon a bank is determined by how much the bank would be able to fulfill the company's need continually. The dependence of a company upon a supplier of raw material is dependent on the supplier's ability to send raw material needed by the company (Kaynak, 2003). Since the output side is dependent on transformation and then it is also dependent on input side, so dependency upon activities within and even between the systems could be appear (Kevin Baird et al., 2011). This interdependency then effects on the relationship between two or more companies. In regard to achieve company's objective, i.e. survival, profitability, and growth, this interrelationship between companies is then more important (Pearce and Robinson, 2009).

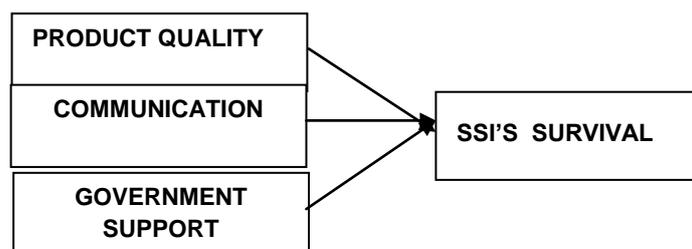
In competition era, product differentiation and low cost should be considered being the focus to survive (Foley, 1997). To this, Interrelationship between the SSI's and the LSI's should be considered as a best way (Ermakov, 1985) as information exchange between them would improve product quality. Communication in the form of exchange information within their activity both at strategic level and operational level can develop cooperation. It then will achieve high efficiency level (Cousins et al., 2008).

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Since the SSI's has a weaknesses in managerial, in financing, in technology, and access to the market (Kagami, 1985), the government monitoring is very needed to support the interrelationship. The government has to drive all elements thinking this interrelationship as a method to achieve national efficiency that has been successful performed by Japanese (Kagami, 1985), Rusia (Ermakov, 1985) South Korea, and Taiwan to drive their industries (Wade,1990). Since the product as a result of many elements, the role of goverment is important to build this interrelationship. So, the interrelationship between the SSI's and the LSI's is not only determined by the SSI's product itself, but also by the role of managerial and government.

#### Conceptual Framework



- Hypothesis (1): The higher the product quality resulted by the SSI's, the stronger the inter-relationship between the SSI's and the LSI's.
- Hypothesis (2): The more often the communication between the SSI's and the LSI's, the stronger the inter-relationship between them.
- Hypothesis (3): The tighter the government control, the stronger the inter-relationship between the SSI and the LSI.

## RESEARCH METHODOLOGY

### Data

Data was collected from the whole population that forms metallurgical industry as located on the island of Java. The industry is dispersed across three provinces, namely West Java, Central Java, and East Java. In West Java, those companies are situated around the JABODETABEK and Bandung, in Central Java they are situated around the Ceper-Klaten and Tegal regency, while in East Java are situated in the Pasuruan and Malang regency.

160 questionnaires are dispersed to the companies cover small scale, middle scale, large scale industries, and the companies that have relation to the relevant product. Observations were also conducted in some companies to check whether or not questionnaires were answered accurately by respondents, in term of company's condition. Information from the other resource is also gathered to complete the information requirement, from instance government institutions, company's association, experts, and the others.

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### **Measurement variable**

The major predictor variables used in this research are classified into three categories that are Product quality, Communication, and Government control. These variables are classified into the independence variable, which would determine the interrelationship between SSI's and LSI's, which will finally effect to the survival of the SSI's. Each then assigned in the form of scale as indicate rank and to show its relative order of magnitude along continuum, for instance poor, good, very good, and excellent.

### **Statistical techniques**

In regard to solve the research problems is what statistical techniques would appropriate, mainly for statistical test. Many statisticians recommended to every researcher in order to be aware about measurement scales that will be used in collecting data. If the measurement scales were nominal and ordinal, non-parametric techniques would be appropriate for the problem. While if the measurement were in interval and ratio scales, and the sample size in large, parametric technique would be appropriate (Sarantakos, 1998). These techniques are based upon an assumption that the data drawn from populations is normal distribution (Kume, 1985). As more than two variables, developed into continuous variables, drawn from the large number (population). These characteristics enable the data are in condition with normal distribution which are able to fulfill the terms of parametric test in its investigation (Conover, 1980).

### **Data Processing**

The first step, all variables predicted have relation to each other is plotted in a scatter diagram, so that the relation between them is known. Effect of independent variable on dependent variable is tested by way of hypothetical testing. The t student then is used to determine whether or not the slope of regression  $\beta$  is equal to zero. With significant level of  $\alpha = 0.05$  or 5%, conclusion of this test can be drawn. If the calculated value were larger than the critical value, null hypothesis would be rejected. It means that the alternative hypothesis would be accepted. It also means that dependent (predicted) variable was really influenced by independent (predictor) variables. The strength of their relation would be measured by Pearson's coefficient correlation, noted by r.

Since the dependence variable would be determined by many independence variables, the relation among variables is displayed by correlation matrix. In this matrix, coefficient of each variable to the others, are presented in a triangle below the diagonal. It contains a coefficient of 1.00 that signify the relationship of each variable with it itself. This matrix is the basis for understanding the nature of relationship

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conducted by multiple regression, discriminant analysis, factor analysis, and other methods (Zikmund,1994).

Whether or not all the independence variables either individually or simultaneously has affect to the dependence variable? It should be tested, whether the coefficients of partial regression  $\beta_1; \beta_2; \dots; \beta_n$  were equal to zero. This test will express how well the given independence variable affects to a dependence variable when the others are controlled. This test would also unveil the possibility of multi co-linearity between independence variables. The further test is simultaneous affect to the dependence variable which assume that all coefficients of multiple regression  $\beta_1 + \beta_2 + \beta_3 + \dots + \beta_n = 0$ . This means that all independence variables have no effect upon the dependent variable. To this, simultaneous affect can be done by using the F-test.

## RESEARCH FINDING

### Descriptive statistics

Based on Industrial Department of Indonesia, Coordinative Agency for Investment (BKPM), and World Bank, 94,50% of the data collected covers the SSI's and the rest is classified to the MSI's and LSI's.

Tabel 1  
Size of Company

Total Employee	Number of companies	Percentage	Accumulative percentage
< 9	12	9.40	9.40
10 - 19	55	43.40	52.80
20 - 49	43	33.80	86.60
50 - 99	6	4.70	91.30
100 - 199	4	3.20	94.50
200 - 499	4	3.20	97.60
500 - 999	1	0.80	98.40
1,000 - 1,499	1	0.80	99.20
1,500 - 1,999	-	0.00	99.20
2,000 >	1	0.80	100.00
Total	127	100.00	

### *Product quality*

The SSI's aware that product quality as is stated by scientists is associated with customer needs (Heizer, 2008), but in practice showed that product quality of the LSI's is better than that of the SSI's. This is because the LSI's have different in their ability to coordinate all production factors than that of the SSI's. There are six significant variables with F-test support the product quality, namely (1) worker productivity, (2) supplier delivery, (3) equipment, (4) operating procedure, (5) supplier's supporting,



(6) management control. Those variables supportive have relation  $R = 0.7421$  yet, it is still low in which just 55 percent ( $R^2 = .5501$ ) of total variation of product quality can be explained by the regression model. It seems, the point of view on quality (in concept) between the SSI's and the LSI's is similar but in practice, they may not be met as the different measurement. The quality coveted to create interrelationship between the SSI's and the LSI's has yet to meet in practice.

Table 2 Intercorrelation of Indices of Product Quality

	Q21	Q19	Q22	Q30	Q38	Q45	Q47
Q21	1.000						
Q19	.621	1.000					
Q22	.418	.273	1.000				
Q30	.334	.212	.333	1.000			
Q38	.184	-.141	.049	.095	1.000		
Q45	.249	.156	.198	.127	.116	1.000	
Q47	-.066	.035	.040	.113	-.093	.166	1.000

Table 3. Multiple Regression of Product Quality

Multiple R	.7421
R Square	.5507
Adjusted R square	.5283
Standard Error	.7226

Table 4. Analysis of Variance of Product Quality

	DF	Sum of squares	Mean square
Regression	6	76.7989	12.7998
Residual	120	62.6499	.5221
F	24.5169	Signif F	0.0000

Table 5. Variable on Product Quality

variable	B	SE B	Beta	T	Sig T
Q19	.47732	.05538	.56611	8.619	.0000
Q22	.14378	.05357	.18169	2.684	.0083
Q30	.05712	.02851	.13290	2.004	.0474
Q38	.04766	.01239	.24270	3.848	.0002
Q45	.04263	.02683	.10197	.1589	.1147
Q47	-.11951	.05647	-.13307	-.2116	.0364
(Constant)	3.07662	.56085	.	.5.486	.0000

### Communication between the SSI's and the LSI's

Communication between producer and customer emerges at organization level and at operational level (Soltani, 2005). First, refers to the top level of management to create a commitment for exchanging the performance in the future, while the second refers to the performing of the commitment (Harrison and New,



2002). It is then followed by goods and information exchange. This communication will determine the degree of cooperation between two companies (Chin S. Ou et al., 2010) identified by either routine or non-routine meeting between companies related to the product delivering and receiving either at top level of management or at operational level.

Of all data collected, just 9.4% (or not more than 10%) communication is carried out by meeting routinely, and 33.9 % often. The rests was dispersed among sometimes (42.5%), rarely (12.6%), and never (16%). This is an indication that communication has yet to be the method for the SSI's and the LSI's to develop interrelationship. There are 5 variables were significant by the t-test namely (1) fixed customer, (2) supplier supporting, (3) stock out problem, (4) buffer stock, and (5) product type. Just 29.2 % of total variation can be explained by regression model. This value is relatively small and unexpected because it means that there are the other variables which have stronger influence the communication.

Exchange information between the SSI's and the LSI's almost nothing as they have no written data related to the product quality. This condition contrasts with the MSI's and the LSI's that had been able to cooperate with its customer by way of placing some foreign experts from Japan, Korea, or Taiwan companies. Those experts perform control over product quality, giving production engineering and even managerial training.

Table6. Intercorrelation of Indices of Communication

	Q12	Q14	Q45	Q50	Q54	Q7
Q12	1.000					
Q14	.149	1.000				
Q45	.308	-.096	1.000			
Q50	.159	-.156	.081	1.000		
Q54	.201	-.128	.065	-.126	1.000	
Q7	.210	-.138	.065	.063	.154	1.000

Table 7. Multiple Regression of communication

Multiple R	.5403
R Square	.2919
Adjusted R square	.2309
Standard Error	1.7954

Table 8. Analysis of Variance of Communication

	DF	Sum of squares	Mean square
Regression	10	154.1440	15.4144
Residual	116	373.9347	3.2236
F	4.7818	Signif F	0.0000



Table 9. Variables of Communication

variable	B	SE B	Beta	T	Sig T
Q14	.02402	.00759	.25913	3.166	.0020
Q45	.19956	.06708	.24528	2.975	.0036
Q50	.25841	.10291	.20593	2.511	.0134
Q54	.04345	.01896	.19623	2.341	.0209
Q7	.05161	.02167	.19382	1.381	.189
(Constant)	3.07662	.56085	.	.5.486	.0000

### Government Control

The fact that the SSI's has a weak condition within its activity appeared almost in every country, in both the Developing and the Developed Countries (Musselman, 1981). Its weaknesses are generally the same in nature that is, in technology, in financing, managerial, skill, and access to the market. The Developed Countries, for instance the USA, have supported the SSI's since 1900 by way of issuing many regulations to control business monopoly conducted by the LSI's (Musselman, 1981). In Japan, the law to protect small business is established in 1949. The same method has also been conducted in Germany, Taiwan, and South Korea. This effort has well yielded in Japan, Korea, Taiwan, and Singapore (Kagami, 1981).

Table 10. Intercorrelation of indices of Government Support

	Q17	Q37	Q46	Q52	Q60	Q4
Q17	1.000					
Q37	.035	1.000				
Q45	-.141	-.142	1.000			
Q52	-.188	-.136	-.167	1.000		
Q60	.200	-.123	.060	-.053	1.000	
Q6	.223	-.064	.076	.100	.919	1.000

Table 11. Multiple Regression of Government Support

Multiple R	.4653
R Square	.2165
Adjusted R square	.1841
Standard Error	1.8568

Table 12. Analysis of Variance of Government support

	DF	Sum of squares	Mean square
Regression	5	115.2815	23.0563
Residual	121	417.1594	3.4476
F	6.6876	Signif F	0.0000



Table 13  
Variables of Government Support

variable	B	SE B	Beta	T	Sig T
Q17	-.01094	.00627	-.14741	-1.745	.0835
Q37	-.02920	.01377	-.17636	-2.121	.0360
Q52	.09476	.08293	.09529	1.143	.2554
Q6	.01349	.00269	1.04655	5.025	.0000
Q60	-2.9098E-04	.5.0738E-05	-1.01443	-4.871	.0000
(Constant)	6.62746	1.25647	.5.275	.0000	

In Indonesia, supporting to the SSI's was just started at 1983 by way of establishing financial and technical assistance, and centers for small industries such as BIPIK (Bimbingan dan Pengembangan Industri Kecil) and LIK (Lingkungan Industri Kecil). These efforts are supported by many institutions, such as House's of Representative, Banks, Governors, and even National Family Planning. The support to the SSI's was then followed by establishing three patterns of interrelationship, namely Poster Father (Bapak Angkat ), PIR (Perkebunan Inti Rakyat), Business Partner (Mitra Usaha), GKUN (Gerakan Kerukunan Usaha Nasional), and Jimbaran Declaration 1996.

There are five variables effect to the interrelationship between te SSI's and the LSI's, but just employee and total assets were confidentially received by both F test and t test. All five variables give a weak contribution with  $R = 46.5$  or ( $R^2 = .216$ ). This result showed that the government policy has not significant affect to the SSI's relationship, either on output side or on input side. Its mean, that the government's coordination to create interrelationship was not effective. It seems receivable if was related to the Business Act (KPPU) to restrict the LSI's is just established in 2003. While the business partner as ideal model for interrelationship was still in a view, even, it could be deemed null.

Controlling over the LSI's from government institutions almost nothing as many natural resources are processed without thinking its environment. Hypothesis that the greater the degree of coordination by the government, the greater the degree of efficiency, can be proven but in the opposite situation, that is the lower the degree of coordination by government, the lower the degree of efficiency.

### **The uniqueness of Indonesian cultural**

In regard to the company's survival and growth, Indonesia has 17,508 islands with its beautiful seashores, sea gardens with many kinds of fish, active volcanoes, rich in flora and fauna and its rarest of animals. These islands are occupied by more than 300 ethnic communities with its distinctive customs and cultures in traditional music, dances, songs, architecture, mosques, temples, shrines and palaces, and a variety of



cuisines. These islands and its communities make Indonesia becoming the uniqueness country that can not be found anywhere else in the world.

If this uniqueness is processed and packaged become a product of tourism industry, it enable to the companies operate in an efficient condition. Everything is available from nature and culture anywhere in the region of Indonesia. Its customers are tourists of both outside and domestic. By developing the tourism industry, the SSI's, MSI's, and even LSI's would be driven to develop any regional product. They would also be driven to create interrelationship as the product required by tourism Industry has linkage each other, for instance entertainment, hotel and cottage, travel agent, cuisine and the each region in Indonesia.

Tourism industry then needs proper infrastructure in the form of airports, roads, bridges, railways, harbors, telecommunication, and the others facilities to convey tourists from the region to other regions, from the island to other islands. This requirement creates the demand for products of heavy industries to build those infrastructures. It then would drive various kinds of business on land, on sea and on air. Demand multiplier effect would also be created for the other supporting products that would absorb a great deal of employees, which in turn create income distribution, and regional building. By way of developing Tourism Industry the demand for the output of the SSI's, MSI's can be created to absorb the SSI's and MSI's product.

### **CONCLUSION /IMPLICATIONS/ LIMITATION**

This study examined the impact of product quality, communication, and government's support, to the interrelationship between the SSI's and the LSI's in Indonesia. Empirical evidence found in this study that their views on product quality have the same point, but there are the difference ability of either on input side, transformation process, and on output side. Cooperation between the SSI's and the LSI's to reduce the uncertainty both at strategic level and operational level is very weak. This is because of information exchange between them related to the product delivered or received has yet to be the method. The government's role which was previously predicted has a strong influence to this interrelationship appear very weak. Support to the SSI's and control over the LSI's conducted by the Indonesian government is different with that of the developed countries (by many regulations).

The impact of this investigation is that the SSI's should be linked with the LSI's in order to be able to play its role in regard to distribute income. Firstly, the government should coordinate and should be controlled tightly by public. Secondly, the capability of the SSI's in term of producing the product quality should improved. This can be done by way of placing the foreign experts to bridge the SSI's and the LSI's.

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Some limitation to this research should be noted. The first limitation is laid on the object of the research that only on automotive industry which according to experts (Ou et al., 2010) cannot reflect the interaction between customer-firm supplier relationship in general.

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