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Full Length Research Paper

The Dynamics of Clove Cigarette Industrial Clusters In Indonesia

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This paper attempts to illuminate the dynamics of Indonesia's clove cigarette industry using Structure-Conduct-Performance (SCP) paradigm and industrial cluster approach. We employed concentration ratios (concentration ratio and Herfindahl-Hirschman Index) and performance ratios in SCP analysis. To identify industrial clusters, we used Geographic Information System (GIS) and specialization index. The structure of clove cigarette industry suggested that an oligopoly with high concentration has been found, albeit declined slightly over the period 1996-2003. As far as geographic concentration is concerned, we found that this industry has clustered overwhelmingly in and around four districts, namely Kudus, Kediri, Surabaya, and Malang. Our study confirms that the spatial pattern of industrial development in Indonesia shows an uneven distribution of manufacturing industry geographically. Cigarette sales were highly inelastic, even during the economic turmoil over 1999-2003, and had remained strong leading to a remarkable performance in terms of value added, employment, and export.

Keywords: clove cigarette industry, oligopoly, concentration ratio, cluster

INTRODUCTION

The presence of clove cigarette (*rokok kretek*) industry in Indonesia has become a contending issue. Bringing together tobacco from the New World and spices from the Old, *kretek* is a product of extraordinary historical circumstances, but its home is Indonesia, where the lingering traces of its distinctive aroma are an ever-present part of everyday life. Around a third of Indonesia's population smokes, with some 90 percent of those choosing kreteks clove cigarettes, whose pungent aroma fills the air from roadside cafes to remote thatch huts. The *kretek* industry has played an importance role in supporting about 7 to 10 million workers, contributing to government excise tax, providing foreign exchange earnings, as well as generating multiplier effects for local development. It contributes substantially to the state revenues and absorbs considerable quantities of manpower from the non-formal sector. On the other hand, it produces products which can harm people's health so that Ministry of Health and non-governmental organizations have been campaigning to avoid smoking.

In the last fifteen years, the cigarette industry in Indonesia experienced a remarkable growth. Economic crisis, triggered by monetary crisis since July 1997, did not affect the industry substantially. In 1994, government revenue from cigarette excise tax accounted for Rp 2.9 trillion. In 1996, it increased to be Rp4.1 trillion. In 1997,

the initial period of monetary crisis, the cigarette industry generated excise tax of Rp about US$4.480 billions. Even in 1998, the excise tax increased sharply to be Rp7.4 trillion (Indocommercial, 1999:1). These figures show that the cigarette industry have played a remarkable role to ease the government burden amid the economic crisis since the contribution of cigarette excise tax to total excise taxes has been more than 85% during the last two decades (Hornaday, 1994: 126-8). Although the contribution of total excise taxes to total taxes has been merely about 10%, the share of cigarette excise tax to total excise taxes has persisted more than 95% since 2000. Machined Clove Cigarettes (SKM) has played a dominant role as the major contributor for government excise taxes. The role of SKM has accounted for about 70%, followed by Hand Rolled Clove Cigarettes (SKT) (20%) and Machined Imported Cigarettes (SPM) (10%). Figure 1 shows the trend of these three major segments of the Indonesia's cigarette industry over the period of 1970-2003.

Predominant role of the "big players" in this industry has long been recognized. During 1999-2003, three giant clove cigarette companies, namely PT.Gudang Garam Tbk, PT. HM Sampoerna Tbk and PT. Djarum, have been included in the Ten Best Companies of Indonesia among "200 Top Companies in Asia", as surveyed by the Far Eastern Economic Review (FEER) (Table 1). Fourth-placed Gudang Garam in 2003 boosted its overall volume by 2.8% to 55.8 billion cigarettes in the first 10 months of the year, returning its market share to a five-year high of 33.5%. Not bad in a year when the industry in Indonesia recorded a 9% slump in volume due to tax increases and weakening purchasing power (McBeth, 2004). In an economy driven by consumerism, Indonesian companies which live and die for the consumer products— mainly cigarettes, cars/motor cycles, noodles, mobile phones, television programmes, and bottle tea— came out ahead in the overall leadership rankings. It implies that not all industries and commodities in Indonesia were hit by the Asian crisis, even they recorded a remarkable growth (Kuncoro, 2007). Three out of these top 10 companies are the giant *rokok kretek* companies of Indonesia, which have dominated the industry. The dynamics and outstanding performance of the clove cigarette industry will be examined thoroughly.

As far as geographic concentration is concerned, major players of Indonesia's clove cigarette industry have clustered overwhelmingly in and around four districts within merely two provinces. PT. Gudang Garam Tbk, PT. HM. Sampoerna Tbk, PT Djarum and PT. Bentoel— the top four companies in the cigarette *kretek* industry– concentrated geographically and formed 'specialized' clusters in only four districts, i.e. Kediri, City of Surabaya, Kudus, and Malang respectively. We will show that the spatial concentration tended to increase over the period of 1996 to 2003.

This paper attempts to analyze the dynamics of Indonesia's clove cigarette industry using Structure-Conduct-Performance (SCP) and cluster approach. It will address the following fundamental questions: To what extent industrial performance and structure of clove cigarette industry in Indonesia has evolved before economic crisis and within economic crisis? Where are the main locations of cigarette clusters in Indonesia? To what extent industrial structure and cluster influence the performance of clove cigarette industry in Indonesia?

The Economics of Clusters

The literature on industrial districts suggests that the dominant features of a cluster are geographical concentration and sectoral specialization. Although a cluster is often characterized by a particular industry, this may incorporate various 'sub-industries'. The obvious example is the electronics manufacturing cluster in Southern California with multifaceted focus on computers, military and space communications equipment and avionics, and a diversity of components from printed circuit boards to advanced semiconductor devices (Scott, 1993: ch.7). In Japan, Wajima *Shikki* industry is a handicraft industry producing wood products involving about 60 processes which are dependent on artisan skill and experience, and performed within 11 categories firms including organizers, subcontractors, decorators, joiners, hollowing-makers, turners, board-rounders, chopstick-makers, and box-makers (Hayter, 1997: 337).

A notable case discussed in the literature is the Brazilian *supercluster* in Sinos Valley. In the 1960s it was a specialised cluster of craftsmen. Through success in export markets, by the 1990s it had become an internationally competitive industrial complex with flexible specialization between firms of different sizes, from small (less than 20) to very large (over 500 workers). Its emergence as a *supercluster* reflected increased depth and density of the local economy, which now includes almost the entire range of supply industries and producer services. Besides 480 shoe manufacturers, there were 1,341 related firms in service industries: workshops, tanning industry, leather and footwear machine industry, component industry, rubber industry, leather article industry, export and forwarding agents. Two causes of this impressive development have been identified (Schmitz, 1995: 14). First, local and central government incentives yielded quick results because export agents had connected Brazilian producers with the United States market. Second, export growth increased the demand for local inputs and machinery, thus contributing to development of the cluster.

Recent research emphasizes the diffusion and dynamism of industrial clusters. The local environment of firms plays a vital role in the diffusion of new products

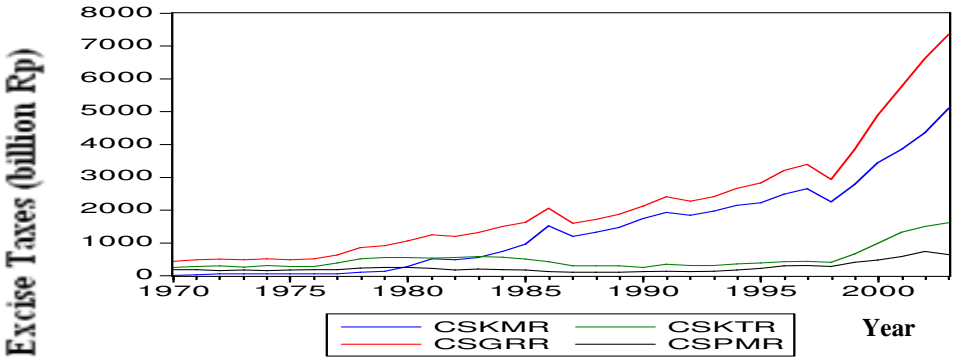

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Figure 1. *Government Revenue from Cigarette Excise Tax: Indonesia, 1970 – 2003 (billions Rp)*
Note: CSGRR = Cigarette Excise Tax Total; CSKMR = Cigarette Excise Taxes from Machined Clove Cigarettes; CSKTR = Cigarette Excise Taxes from Hand Rolled Clove Cigarettes; CSPMR = Cigarette Excise Tax from Machined Imported Cigarettes.
Source: Calculated from Directorate General of Customs and Excise (2005)

Table 1. *Rank of Top Ten Indonesia's Companies in the '200 Top Companies in Asia', 1999-2003*

2003	2002	2001	2000	1999	Company	Point
3	2	1	1	2	Astra	6.06
1	1	2	2	3	Indofood	5.9
6	**5**	**3**	**3**	**6**	**Sampoerna**	**5.72**
4	**3**	**4**	**4**	**1**	**Gudang Garam**	**5.55**
7	6	5	5	5	Indosat	5.42
8	**7**	**6**	**8**	**7**	**Djarum**	**5.1**
9	10	7	9	-	Telkomsel	5.03
-	-	8	-	-	Satelindo	4.97
10	8	9	7	-	Sosro	4.95
-	-	10	10	-	SCTV	4.94

Source: Far Eastern Economic Review (FEER), http://www.feer.com/, various years

and technologies. This is driven mainly by interlinked elements of a cluster via: (1) *vertically* or *convergently*, when different stages of a process are involved, as in the case of spinning or weaving or where assembly lines are fed by different sub-processes; (2) *laterally*, where the same stage in a like process is involved, as in the case of men's clothing and women's clothing; and (3) *diagonally*, when service processes are involved, such as repairing, trading, collecting (Bellandi, 1989; Florence, 1961).

Interconnected companies and institutions in a particular field and spatial proximity is briefly illustrated by the case of California wine cluster. As pointed out by Porter (1998), the California wine cluster includes 680 commercial wineries, several thousands independent wine grape growers, an intensive complement of supporting industries (i.e. suppliers of grape stock, irrigation and harvesting equipment, barrel and labels, specialised public relations and advertising firms), along with a host of local institutions involving with wine, such as viticulture and enology program at the University of California at Davis and the Wine Institute (Porter, 1998: 78-9).

Many studies have tried to explain the emergence and evolution of industrial clusters. The major reasons for the growth of industrial clusters may be summarised as: (1) concentrations of highly specialised knowledge, inputs and institutions, (2) the incentives of both local competition and cooperation, (3) the presence of sophisticated local demand for a product or service, (4) geographical, cultural, and institutional proximity, (5) a proliferation of many different producers, all locked together in mutual interdependence through their transactional relations (Porter, 1990, Porter, 1994, Scott, 1993: ch.2). Numerous case studies suggest that clusters require a decade or more to develop depth and real competitive advantage (Porter, 1998, Schmitz, 1995).

Our study argues that Indonesia is an excellent laboratory for testing the industrial district theories. To analyse clove cigarette clusters, we depart from previous methodologies that use the case study approach and a small set of clusters (e.g. van Diermen, 1997, Sandee & Weijland, 1989, Weijland, 1999, Bachruddin *et al*., 1996).

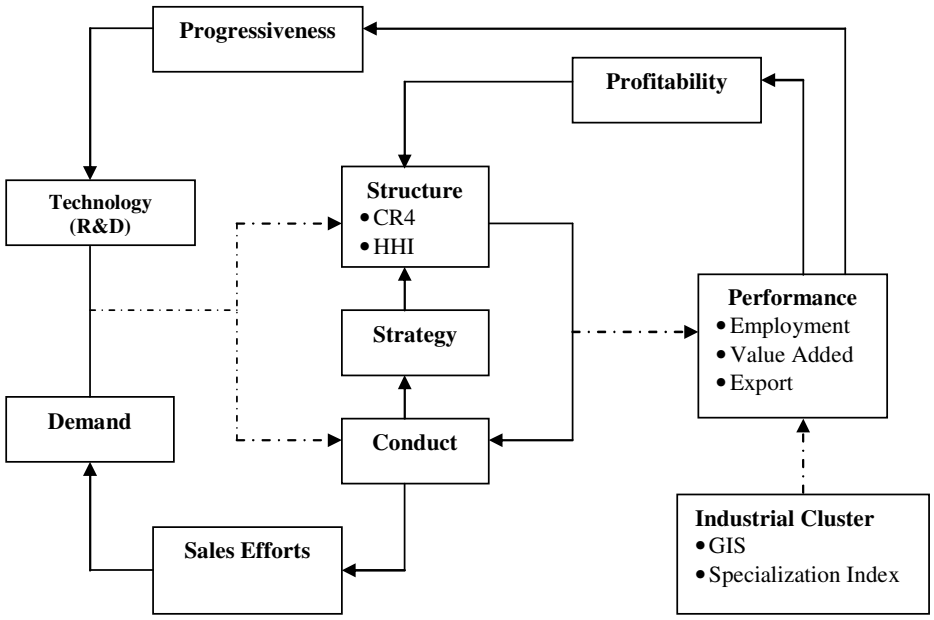


Figure 2 *SCP and Industrial Cluster Approach*
Source: Modified from Martin (1994:7), Kuncoro (2007: Ch. 7)

A case-study approach is useful in shedding light on internal functioning of industrial clusters, however it should not be used in illustrating the general characteristics or evolution of industrial clusters (Paniccia, 1998). By contrast, we will present inter-cluster comparisons to highlight the dynamics and different characteristics of clove cigarette clusters, which support the hypothesis of industrial district theory. We will observe that Indonesia has at least four foremost cigarette clusters.

MATERIALS AND METHODS

This paper attempts to illuminate the dynamics of Indonesia's clove cigarette industry using Structure-Conduct-Performance (SCP) paradigm and industrial cluster approach (Figure 2). First, to analysis industrial structure, two common indicators of concentration are used, i.e. concentration ratio and Herfindahl-Hirschman Index (HHI) (Church & Ware, 2000: 428-30; Blair & Kaserman, 1985: 235-7). Concentration ratio of n-firm shows sale of n biggest company to total sales of industry. We use CR4 and of CR8, which shows share of 4 biggest companies and 8 biggest companies in industry respectively. Market structure an industry is also analyzed by using HHI. The last is a quantitative measure of market share squares of every company in an industry. The index varies between 0 till 1. If HHI equals to or close to 0, it implies industrial structure tends to perfect competition. If the index comes near 1, the industrial structure complies with monopoly characteristics.

Second, main locations of clove cigarette clusters will be identified by applying a geographic information system (GIS), together with specialization index. Following Glaeser, *et.al.* (1992), we use the specialization index, that reveals how specialised a cluster in an industry relative to what one would expect if employment in that industry was scattered randomly across Indonesia. More specifically, the specialization index (S_{irt}) is calculated by:

$$S_{irt} = \frac{E_{ir}}{E_{it}},$$

where E_{ir} is employment in industry *i* divided by its total employment in that region; and E_{it} is employment in industry *i* for all regions in Indonesia divided by its total employment in for all regions in Indonesia. S_{irt} exceeds 1 implies that the industry commands a larger share of the region's employment than the average share that industry enjoys in Indonesia. On the other hand, when S_{irt} has a value less than 1, it means that the region does not specialize in that industry since the industry has a lower share of the region's employment than the average share that industry gets in Indonesia. A rising S_{irt} for a region-industry indicates an increasing specialization of that industry in that region. Indeed, we believe that high specialization of an industry in a region should speed up growth of that industry in that region.

A growing awareness of the limited explanations offered by the traditional location theory has led to the

Table 2 Industrial Structure of Clove Cigarette Industry: Indonesia 1996-2003

Year	CR4	CR8	HHI	Total Firms
1996	0.8109	0.9174	0.3131	191
1997	0.8216	0.9071	0.3207	190
1998	0.6807	0.8206	0.2056	204
1999	0.7891	0.8812	0.2716	206
2003	0.8565	0.9706	0.2939	207
Average	0.7918	0.8994	0.2810	

Source: Calculated from BPS (2004)

surge of new economic geography, namely *geographical economics* (Kuncoro, 2000). Recently a growing number of economists have become interested in the study of location problems (e.g. Krugman, 1995; Lucas, 1988), which triggered a new tool which has made an interesting contribution to geographical economics. One of the major trends in the geographical economics is employing the GIS in a socio-economic context that focuses on the processes acting spatial data in its passage through information system. The main characteristics of GIS, as summarized by Martin (1996: 3), are as follows: (1) *Geographic:* The system is concerned with data relating to geographic scale of measurement, and which are referenced by some coordinate system to location on the surface of the earth; (2) Information: This represents the extraction of specific and meaningful information from a diverse collection of data, and is only possible because of the way in which data are organised into a 'model' of the real world; (3) System: This is the environment which allows data to be managed and questions to be posed. A GIS should be an integrated set of procedures for the input, storage, manipulation, and output of geographic information. Thus, GIS is a special type of information system, concerned with the representation and manipulation of a geographic reality. A GIS transforms data into information by integrating different data sets, applying focused analysis and providing output, all in manner to support decision making (Juppenlatz & Tian, 1996: chap.1). The inventory, analysis, mapping and modelling capabilities of GIS inevitably has wide application in a range of discipline, ranging from information technology to socio-economic or population-related data (Martin, 1996: 4-5).

In this study, we follow some typical procedures involved in creating and using GIS, namely: data acquisition, preliminary data processing, database construction, spatial search and analysis, and graphical display and interaction (Table 2).Our study relies on secondary data from the *Annual Industrial Survey* (SI) data collected by BPS (Central Bureau of Statistics) of Indonesia. The surveys provide the plant-level data of large and medium manufacturing firms, with more than 20 workers, that can be disaggregated by industry code (ISIC) and district, providing all data of industry-specific variables. More specifically, the SI encompasses about 20,000 firms, 27 provinces, and 300 districts over the period of 1996-2003. The raw SI offers a vast amount of plant-level data of large and medium manufacturing firms, with 20 or more workers, which can be disaggregated by industry code (ISIC) and districts, and provide all data of industry-specific variables. Data used extensively for this research are: (1) Value of output, which is obtained from yielded goods, sold electric power, and industrial service given by other party; (2) Value of input, which can be referred as input expense by company in course of his production; (3) Total employment, which is the total amount of workers for production and non-production purpose; (4) Value-Added is difference between value of output and input value; (5) R&D, which is the amount of expenditures released by company in conducting development and research.

The performance of clove cigarette industry will be examined using some indicators such as employment, value added, and export. The last section of this study will explore some key determinants of industrial performace by employing panel data and regression analysis. The model attempts to highlight three dimensions of our data: industry, region, and year. Industry in our data is two-digit industrial sectors, i.e. food (ISIC31), textile (ISIC32), wood (ISIC33), paper (ISIC34), chemicals (ISIC35), non-metal (ISIC36), basic metal (ISIC37), fabricated metal (ISIC38), and others (ISIC39) industry. The regions are *kabupaten* or *kotamadya*, or approximately a district-counties. As not all regions have cigarette firms, we only focus on 41 regions. Years include the period of 1999 and 2003. Given the three dimensions of our data, we deal with a model that pools time series and cross-sectional data.

RESULTS AND DISCUSSION

Structure of Clove Cigarette Industry

Industrial structure of clove cigarette industry is identified using some industrial concentration indicators, in particular CR4, CR8, and HHI (Table 2). Following standard analysis in industrial economics, industrial structure can be classified as an oligopoly when four biggest companies hold 40% of pertinent industry (CR4 = 40%) (Kuncoro, et al., 1997: ch.22; Kuncoro, 2007: ch.7). If strength of the company assumed is same, hence sale /production of each company is 10% from sale/prodution an industry.

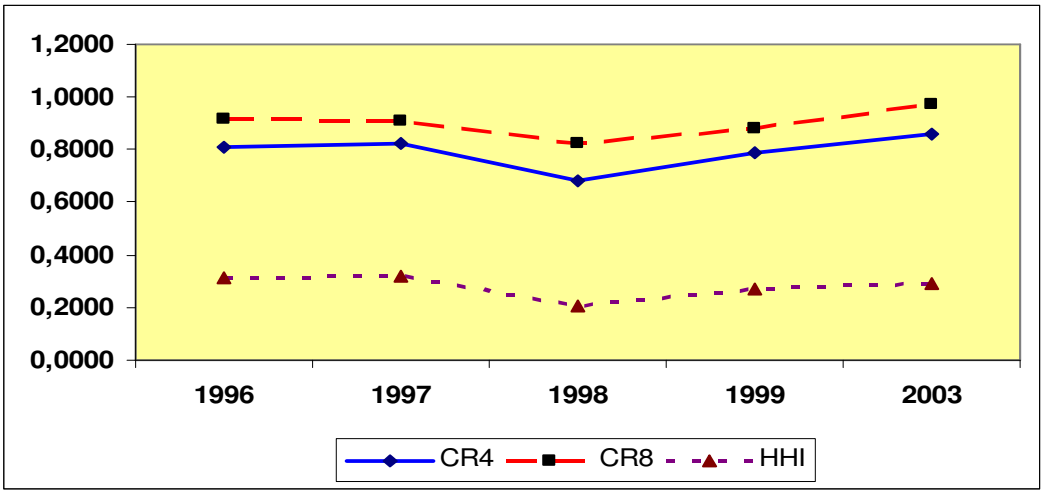


Figure 3. Industrial Concentration of Indonesia's Clove Cigarette, 1996-2003
Source: Calculated from BPS (2004); Sumarno & Kuncoro (2003); Kuncoro (2007)

While, according to Stigler, an industry told to have oligopoly structure when having industrial concentration more than 60% (Hasibuan,1993).

The results, as shown by Table 2, highlight that concentration of clove cigarette industry in Indonesia in average during 1996-2003 were 79.18% in terms of CR4, and 89.94% in terms of CR8. As the values are above 40%, the industrial structure of clove cigarette in Indonesia can be classified to have oligopoly structure. Following Bain (1956), this industrial structure is oligopoly with very high concentration. In addition to CR4 and CR8, HHI indicates the same result. Whereas HHI has mean value of 0.28. It implies structure of clove cigarette industry is not monopoly because average value of HHI does not close to one.

In 1998 there were about 14 new firms entering the industry. As the number of firms had increased, CR4 and of CR8 declined substantially about 14% and 8% respectively. According to classification of industrial structure compiled by Bain, in that year industrial structure of clove cigarette in Indonesia entered in type of III, that is oligopoly type with moderate concentration level. Degradation of industrial concentration in 1998 occurred because of two reasons. First, the increase in number of company lessen market share of the 4 biggest companies. It implies barrier to entry tend to decline. Second, economic crisis culminated so that four largest cigarette companies are affected by a sharp drop in demand.

In 1999, however, the number of clove cigarette companies in Indonesia increased to be 206, with higher industrial concentration than that of year 1998. In 2003, there was one new entrant firm in the industry. The concentration were 85.65% in terms of CR4, and 97.06% in terms of CR8. When we compare the condition of year 2003 with year 1996, we may conclude that industrial concentration tended to increase slightly mainly due to an increase in the number of companies (Figure 3).

This result supports previous studies conducted by Hornaday (1994: 129-132) and the Association of Clove Cigarette Factory in Indonesia (GAPPRI). Both studies suggested that clove cigarette industry was dominated by four largest companies, namely PT Gudang Garam, Tbk., PT HM. Sampoerna, Tbk., PT Djarum and PT Bentoel. According to GAPPRI, in 1998, 22 biggest cigarette factories in Indonesia produced 164.1 billion cigarettes, consisting of 54.8 billion hand-rolled cigarettes (SKT), 109 billion machine-rolled cigarettes (SKM), and 235 million cigarette *klobot* (a kretek rolled in a dried corn husk by hand). The following section will try to examine a brief profile and market share of the four largest companies in the clove cigarette industry.

PT. Gudang Garam, Tbk

Gudang Garam has been the industry leader. Founded in 1958 in Kediri district, this company first produced cigarette *klobot*. Thank to professional management system introduced in the early 1980s, Gudang Garam overtook other companies in the industry. It has become the biggest public firm in cigarette industry. Gudang Garam has the biggest market share of clove cigarette industry in Indonesia yielding 74.4 billion cigarettes or 45.4% market share of total production of 22 biggest companies under GAPPRI. SKT yielded by the company decline steadily, from 74.4 billion cigarettes in 1998 consisted of 61.2 SKM cigarette (82,1%), whereas production of SKT and of klobot is only 13,1 billion (Indocommercial, 1999:1).

Rely on its various brands, Gudang Garam has mastered market share till 50% up to now. Biggest contribution of Gudang Garam income was obtained from SKM with brand of Gudang Garam Filter International. In SKM segment, Gudang Garam offered brands such as Gudang Garam Surya 12, Gudang Garam Surya 16, Gudang Garam Filter Red International 12, Gudang Garam Filter Red International 16. Whereas in SKT segment, it produced Gudang Garam of King Size 12, Gudang Garam of King Size 16, and Gudang Garam of Surya Pro (Indocommercial, 2002: 4).

PT. HM. Sampoerna,Tbk

Founded by Liem Seng Tee in 1913, Sampoerna is well known as a *kretek* producer with "Djie Sam Soe" brand. This brand with number 234 has a philosophy when summed will yield number nine, implying luck according to the Chinese belief. In 1930, it became a limited company (PT) by the name of Handel Maatschappij Liem Seng Tee. In 1963 its corporate name was turned into PT PD & I Panamas, or shortened by PT. Panamas with the stockholder of Mr. Aga Sampoerna and of Mr Liem Swie Hwa. In 1977 it changed again as Mr. Putera Sampoerna, the son of Mr. Aga Sampoerna, joined in. In 1988 the name is turned into PT. Hanjaya Mandala Sampoerna when some new stockholders joined in. PT HM Sampoerna had gone public in July 1990 by selling 15% of its shares to society, amounting to 27 million shares (Indocommercial, 2002: 4).

PT. HM. Sampoerna,Tbk is a cigarette company holding second market share after PT. Gudang Garam,Tbk. It produced 25 billion cigarettes, of which 9.4 billion SKM or only 37.6% from its total product. SKT products offered by Sampoerna are Djie Sam Soe and Sampoerna Hijau. In SKM, it has Djie Sam Soe Filter, Red A King and Green A King, and also A International using technology of twin wrap. In addition, for the production of SKM, Sampoerna have pre-eminent brand such as Red A Mild 12 and 16, Green A Mild 12 and 16.

Box 1 shows how Sampoerna has transformed to be a multinational corporation, which expand its business to various countries. On 14 March 2005, Philip Morris International announced the purchase of Indonesian tobacco company PT HM Sampoerna. A move that was surprising in more than one way. Since mid March, one cannot help imagining the Marlboro man, being enveloped not only in his usual scent of horse and campfire smoke but also by the spicy and somewhat exotic smell of cloves. Philip Morris International (PMI), together with Philip Morris USA part of Altria Group and the world's leading manufacturer of cigarettes, has announced the acquisition of PT Hanjaya Mandala Sampoerna, Indonesia's third largest tobacco company behind Gudang Garam and Djarum. PMI said it had entered into agreements to acquire a 40 per cent stake in Sampoerna from a number of Sampoerna's principal shareholders, and proceeded to make a public tender offer for 100 per cent of the remaining shares at a price per share of Rp 10,600 (US$ 1.13 per share), a premium of 20 per cent over the price of Rp 8,850 (US$ 0.95) on Thursday, 10 March 2005. Assuming all shares are tendered, the transaction values Sampoerna at about Rp 48 trillion (US$ 5.2 billion) including net debt of around Rp 1.5 trillion (US$ 160 million). PMI said that it would pay cash for all shares tendered and expects the transaction, when completed, to accrete modestly in 2005 to the diluted earnings per share of Altria Group. The transaction will be debt financed through a bank credit facility arranged for PMI and its subsidiaries. The tender offer is expected to be completed within about 90 days and is subject to customary regulatory review (Tobacco Journal, 2008).

PT. Djarum

PT. Djarum is the third largest cigarette company in Indonesia. Founded by Oei Wie Gwan, it was initially a small cigarette factory in Kudus in 1951. It should have totally disappeared at the time of burning and dead of Oei Wie Gwan. Two sons of Oei Wie Gwan restructured and redeveloped Djarum so that it can survive from the crisis. Having succeeded with SKT, Djarum expanded SKM business (Djarum, 2002).

PT. Djarum occupies the third position in clove cigarette industry in Indonesia. It has produced 20.9 billion cigarettes, of which 9.3 billion SKM (44,5%). In 1985 and 1986 PT. Djarum had overtaken Gudang Garam. Djarum's products are channelled to both entire regions of Indonesia and foreign countries. Its keys success are integrated-computerized distribution network, combined with timely and professional service to all customers. Its national distribution is managed by three companies, i.e. PT. Anindita Multiniaga Indonesia for East Java, Sulawesi, East Kalimantan, South Kalimantan, Middle Kalimantan, Bali, Nusa Tenggara and Papua regions; PT. Lokaniaga Adipermata for the Central Java and West Java regions; and PT. Adiniaga Sentrapersada for Jabotabek, some regions of West Java, Sumatra and West Kalimantan (Djarum, 2002).

BOX 1 SAMPOERNA AS A MULTINATIONAL CORPORATION

Putera has done so many moves to transform Sampoerna. Starting with his effort to create Sampoerna as a world-class cigarette manufacturer by improving business process, building modern production facilities, implementing sophisticated technology, and developing human resources competencies, Putera had also transformed Sampoerna to become a market-driven company by improving distribution system, developing market research, building brand equity, and increasing field marketing activities.

The latest legacy of Putera was his effort to make Sampoerna to become a multinational corporation by expanding his cigarette business abroad. This was started at the beginning and mid-1990s, and now we can see the success by finding Sampoerna's brand in good market position in some countries with prospective markets -such as Malaysia, Myanmar, Vietnam, Brazil, Philipina, and Taiwan.

Putera is really a visionary man. He can see the future before somebody else. His pioneering steps of business for Sampoerna were really needed because these steps had become a new growth machine for the company. Furthermore, when the domestic market was still in prospective condition he had built a strong basic for business penetration into global market which market was far more prospective.

Generally, the goal of Sampoerna's activities abroad was to build Sampoerna's product image globally. This goal was achieved by expanding its core business competency to an abroad operational network, as well as building a good platform for multinational market. Every country has a different market condition, therefore the strategy should adopt each country's market condition. Sampoerna started to introduce a series of product which can be accepted in some countries with a high growth rate. Sampoerna used two kind of approaches. First, by buying or developing a brand of white cigarette in one country as a proof of Sampoerna's existency. Second, by building up manufacturer facilities, distribution, and sales network for any kind of product that could be accepted easily by the local markets.

There are two factors that influence the competitiveness of Sampoerna's global operation. First, the skill, experience and solid infrastructure in producing and marketing cigarette. Second, the selection of strategic partner who has a same vision in developing the brand in new markets.

Based on Niraj Dawar and Tony Frost model, Sampoerna used an extender strategy, that is a strategy that focused on developing neighbor countries' market', based on competencies that had been built domestically. By having a transferable asset which is built domestically, an extender company can use its domestic success as a platform to expand to global market. An extender company can expand its transferable assets by finding similar markets, especially in terms of consumer behavior, geographic, distribution channel, or goverment regulation. Putera knew exactly that Sampoerna had the transferable assets, that is its competency in producing and marketing cigarettes in Indonesian market, and tried to transfer the assets to new market in neighbor countries, as well as other international markets.

Sampoerna's global strategy began with the initiation of Sampoerna International Pte.Ltd (SI) in 1995. This company had a simple task to expand Sampoerna abroad, by building formal production facilities to fulfill local consumption in certain market in South East countries, and by setting up an independent distribution system in each of its operational area as an important supporting item for production. In five years, Sampoerna International had successfully building up a wide production network platform in Asia. Up to the year of 2003, Sampoerna had sold 8 billion cigarettes outside Indonesia. It main markets were Malaysia and Myanmar, each was contribute 40% and 3.2% market share respectively. While most of its sales volume came from Indonesia market, the magnificent growth of its global sales volume had drawn a bright future for Sampoerna. Sampoerna is still trying its best to get into other prospective markets such as Taiwan, Russia, Middle East, West Europe, as well as East Europe. This effort was supported by continuous research to make sure that those countries are prospective ones which will create high sales growth.

Myanmar was a prospective market because this was the time of transformation period from traditional cigarette to SKM. Sampoerna started to explore Myanmar market in 1992 and in three years time it already had 65% share of Myanmar Sampoerna Tobacco Co.Ltd. (MTSC). In 1999 the MTSC has built up a secondary production capacity that can produce two billion cigarettes per year, completed with its filter production facility. MTSC launched a success brand of *Golden Eagle* in 1997. This white cigarette with common market taste had been sold more than 60 million pieces in the first nine month. For the next year the sales volume was increase more than three times. Other brand that had become a successfull trend-setter in market was *Vegas.*

Vietnam market was closely controlled by its government. Sampoerna came into Vietnam market in 1995 by having 75% share of Vinasa Tobacco joint venture company (Vinasa). In 1999 Vinasa had a secondary production capacity of more than two billion pieces, using the cigar raw material that was imported by Sampoerna in Philipina. Vinasa produced two brands of white cigarettes for Vietnam domestic and international market. The brand of Golden Eye and Rave were positioned to compete in mass market segment which was a 79% of total market volume.

The third market was Malaysia which consumers had different taste in choosing their brand of cigarette. They prefer Virginia, an American white cigarette, clove cigarette, and a menthol one. Sampoerna bought 65.5% share of Joo Lan Tobacco Company Sdn. Bhd. In 1990, and this was the starting point of outside Indonesia Sampoerna's production. Joo Lan was also functioned as the basic of clove cigarette export, especially to Singapore and Brunei markets, with 80% of production growth per year. In 1998 Sampoerna's brands came to its top sales record in Singapore and Brunei, with market share of 2% and 15% respectively.

Other market was Philippina which was entered by Sampoerna in 1995 by buying a minority share of Sterling Tobacco Corporation (STC). Up to 1999 domestic sale in the Philippine had good sales of two billion pieces of cigarettes which covered 3% of market share. Unfortunately, in 2001 Sampoerna plant in Philippine vanished by fire. In 2003 Sampoerna decided to sell its share to an international tobacco company as much as US$ 15 million. This divestation decision was made because the company only had a strong position in low level market which also generate low profit margin, and there ws a decreasing cigarette market in Philippine at that time.

Other prospective markets entered by Sampoerna were Brazil and Taiwan. Through its Sampoerna Tobacco America Latina, Sampoerna marketed an ''A" family brand in some cities such as Sao Paulo, Rio and Brazilia, with a strong campaign in printed media as well as electronic media. Up to the year of 2001, at least ten thousand outlets sold Sampoerna's brands of *A Mild* or *A International* in Brazil. In 2001 Sampoerna launched ST Dupont in Taiwan, targeted to premium cigarette market in this country. Sampoerna expected a high market growth in Taiwan.

Source: Kartajaya, *et al.* (2005:178-189); Kuncoro (2006: 156)

PT. Bentoel

PT. Bentoel was founded Malang district, East Java, in 1920. Its first product was cigarette of *klobot* with Bird brand. PT. Bentoel used to occupying the third position of clove cigarette industry in Indonesia. However, a few years ago it got a real problem because of huge debt burden. Precisely in June 1991, the company cannot pay its loan, about US$ 45 million, to a group of international banks when it was due. This problem arised from because of mismanagement and misuse of the loans. Instead of financing plant modernization, the money loan US$ 45 million had been invested in Australian and California resort properties (Hornaday, 1994: 131). In short, PT. Bentoel invited outside party, i.e.PT. Rajawali Wira Bhakti Utama (RWBU), leading to control 70% of its stock (Indocommercial, 2002: 6).

PT. Bentoel has long known as a pioneer in developing system of first automatic rolling machine in the year 1968. The major product of Bentoel in SKT is Red Bentoel, while for SKM are Bentoel International 12, Star Mild and Bentoel Mild.

Performance Analysis

As far as performance is concerned, clove cigarette industry constitutes one of industries that were not affected adversely by the economic crisis. Table 3 illustrates clove cigarettes, white cigarettes, and *klobot* (self-roll over) cigarettes kept growing during 1996–2001. In total, although a slight drop in cigarette production occurred in 1999 and 2000, it recovered in 2001.

Indonesia's clove cigarettes are not only consumed by domestic consumers but also exported to foreign countries. Table 4 shows that how export of all types of cigarettes in terms of value and volume evolved over 1996-2001. In 1997, the volume of export reached its top record. In terms of US$ value, the highest figure was in 2000. The countries destination of cigarette export have been mainly to Malaysia, followed by some countries in Asia, such as Thailand, Cambodia and Jordan (Sumarno & Kuncoro, 2003: 64-65).

To what extent clove cigarette industry contributed to the Indonesia's manufacturing industry? Table 5 highlights the share of clove cigarette industry to total

Table 3. *Cigarette Production in Indonesia, 1996 – 2001 (in million cigarettes)*

Year	Clove cigarettes	White cigarettes	Klobot/Klembak	Total
1996	159.500	53.640	6.146	219.286
1997	169.121	55.973	7.900	232.994
1998	167.005	69.464	8.510	244.979
1999	163.665	67.380	7.400	238.445
2000	164.483	66.706	6.700	237.889
2001	168.071	69.423	6.500	243.994

Source: Indocommercial (1999; 2002)

Table 4. *Export of Indonesia's Cigarettes, 1996-2001*

Tahun	Clove cigarettes		White cigarettes		Total	
	Volume (Ton)	Value (US$'000)	Volume (Ton)	Value (US$'000)	Volume (Ton)	Value (US$'000)
1996	26,918	127,198	-	-	26,918	127,198
1997	32,327	136,927	300	490	32,627	137,417
1998	23,931	99,978	87	978	24,018	100,956
1999	23,799	112,514	121	1005	23,920	113,519
2000	22,473	139,222	31	501	22,504	139,723
2001*)	13,123	78,400	39	462	13,162	78,862

*) Till June
Source: Indocommercial (1999; 2002)

Table 5. Percentage Share of Clove Cigarette Industry to Total Manufacturing Industry in Indonesia (%)

	Key Variable	1996	1999	2003
1	Employment	4.15	4.65	5.53
2	Value added	8.79	10.15	10.88
3	Number of establishments	0.83	0.93	1.02

Source: Calculated from BPS in Kuncoro (2007), Setiawati (2006)

manufacturing industry in terms of employment, value added, and number of establishments. Each indicator shows a slight increase between 1996 and 2003.

Cluster Analysis

As far as industrial and regional development are concerned, regional concentrations of economic activity within a country occur in both industrial and developing countries, albeit vary in several important respects. Widespread regional clustering is found in Germany, UK, India, Italy, Portugal, Japan, Australia, Brazil, Spain, and the United States (Krugman, 1995; Krugman, 1998; Porter, 1998; Schmitz, 1995). In US, some historic examples of this clustering are computer chip manufacturing in the Silicon Valley, the movie industry in Hollywood, fashion industry in New York City, automobile manufacturing in Detroit, and electronic industry in Southern California. Whereas, in many developing countries, a large proportion of economic activity tends to concentrate geographically around capital cities such as Bangkok, New Delhi, Manila, and Jakarta, which engender a spatial system based on the accumulation of capital and labour in urban agglomerations.

The 'classical' explanation refers to two forms of agglomeration economies, namely localisation and urbanisation economies (e.g. Henderson, 1988; O'Sullivan, 1996). *Localisation economies* occur if the production costs of firms in a given industry decrease as the total output of the industry increases. By locating near other firms in the same industry, a firm can enjoy several special advantages. In contrast, *urbanisation economies* occur if the production cost of the individual firm decreases as the total output of the associated urban area increases. These economies result from the scale of the entire urban economy, not just the scale of a particular industry. Moreover, urbanisation economies benefit all firms throughout the city, not just firms in a given industry.

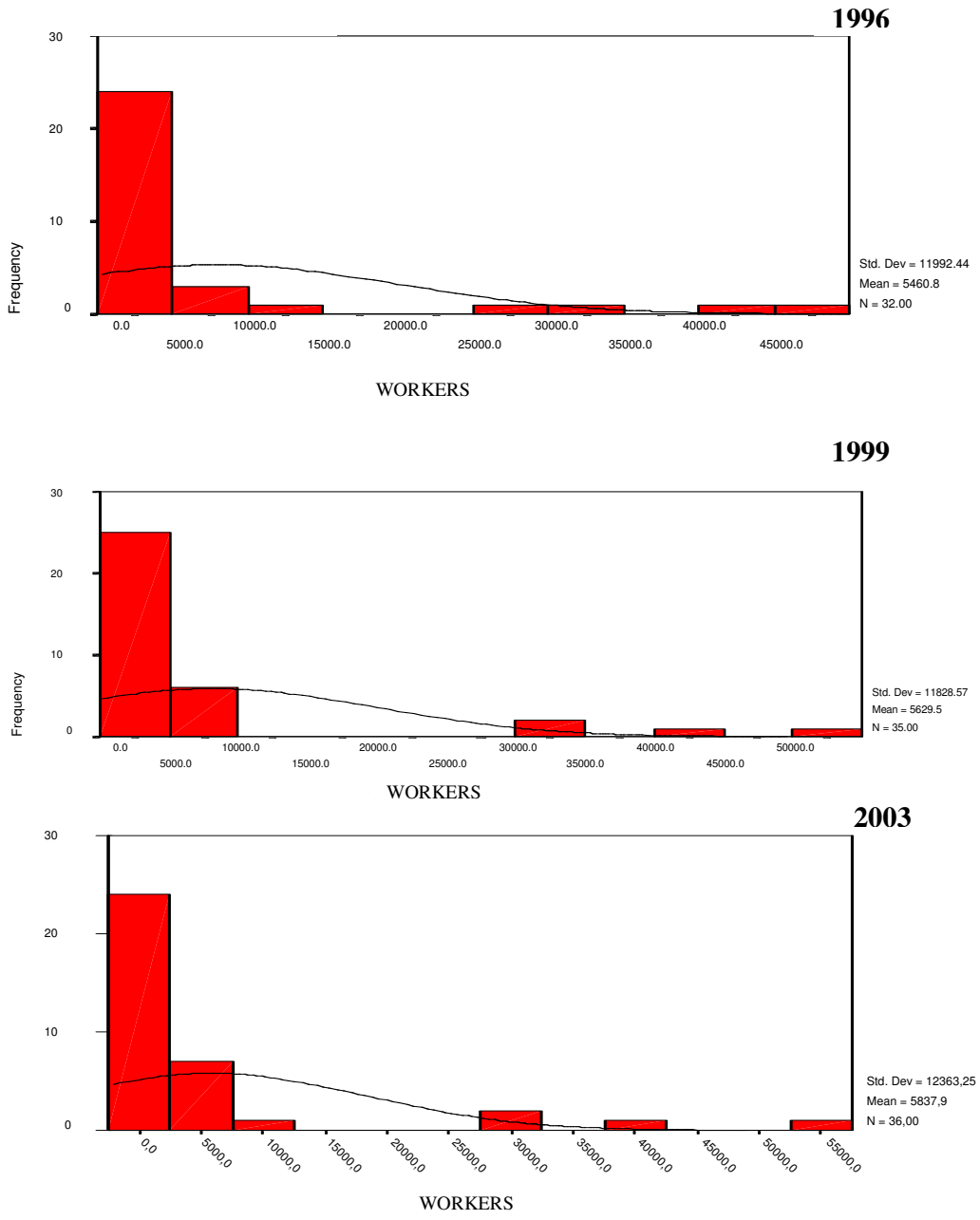


Figure 4. Histogram of Employment Distribution: Clove Cigarette Industry, 1996-2003

We used GIS to identify geographic distribution and clusters of clove cigarette industry in Indonesia. GIS is proved useful to identify location of industries and where they tend to cluster (Kuncoro, 2001b). The results show that clove cigarette industry can be found 6 provinces, namely North Sumatra, West Java, Central Java, East Java, Bali and North Sulawesi, scattered in 32 districts with total 191 companies, in 1996. In 1999, clove cigarette industry located in merely 2 provinces, i.e. Central Java and East Java, clustered in 35 districts with 206 unit of companies.

Ranking the 279 *kabupaten* and *kotamadya* in terms of both employment and value added in clove cigarette establishments in 1996 and 1999 reveals that these establishments are very unevenly distributed throughout Indonesia. Figure 4 confirm that the distribution of employment and value-added by *kabupaten/kotamadya* is skewed rather than normal statistically. Both employment and value added have positive values of skewness and kurtosis. In 1996, the

Table 6. Rank and Classification of Kabupaten/Kota in Terms of Employment in Clove Cigarette Industry: Indonesia, 1999-2003

1996				1999				2003			
Class	**Province**	**District**	**Employ-ment**	**Class**	**Province**	**District**	**Employ-ment**	**Class**	**Province**	**District**	**Employ-ment**
Very high	Jateng	Kudus	46.971	**Very high**	Jateng	Kudus	50.523	**Very High**	Jateng	Kudus	55.458
	Jatim	Kediri*	39.326		Jatim	Kediri*	37.508		Jatim	Kediri*	40.654
	Jatim	Surabaya *	29.803		Jatim	Surabaya*	29.843		Jatim	Surabaya*	29.259
	Jatim	Malang *	25.599		Jatim	Malang*	29.165		Jatim	Malang*	27.911
High	Jatim	Malang	8.064		Jatim	Malang	6.210		Jatim	Pasuruan	7.628
	Jatim	Sidoarjo	3.992	**High**	Jatim	Pasuruan	5.772		Jatim	Malang	7.011
	Jatim	Tulungagung	2.979		Jatim	Sidoarjo	4.834	**High**	Jatim	Sidoarjo	4.587
	Jateng	Semarang*	2.822		Jateng	Semarang*	4.097		Jatim	Jombang	3.964
	Jatim	Blitar	1.830		Jatim	Tulungagung	3.286		Jateng	Semarang*	3.781
	Jatim	Pasuruan	1.804		Jatim	Lamongan	3.171		Jatim	Mojokerto	2.881
	Jateng	Pati	1.626		Jatim	Ngawi	2.275		Jatim	Ngawi	2.813
	Jatim	Bojonegoro	1.455		Jatim	Mojokerto	2.058		Jatim	Bojonegoro	2.358
	Jateng	Jepara	1.443		Jateng	Pekalongan*	1.988		Jateng	Pati	1.639
	Jateng	Surakarta*	1.337		Jatim	Blitar*	1.641		Jateng	KarangAnyar	1.566
					Jateng	Pati	1.639		Jateng	Surakarta*	1.442
					Jatim	Tuban	1.523		Jatim	Tulungagung	1.349
					Jateng	Surakarta*	1.514		Jateng	Jepara	1.251
					Jateng	Jepara	1.277		Jateng	Salatiga*	1.174
					Jatim	Bojonegoro	1.227		Jateng	Blora	1.069
					Jateng	Batang	1.200		Jateng	Pekalongan*	1.032
					Jateng	Blora	1.004		Jateng	Batang	1.000

Note. * District/Kotamadya
Source: Calculated from BPS (2004), Setiawati (2006)

value of skewness for employment and value added was 2.6 and 4.3 respectively; while the value of kurtosis is 5.8 and 19.9 respectively. In 1999, the value of skewness for employment and value added was 2.8 and 4.2 respectively; while the value of kurtosis was 7 and 17.9 respectively. In 2003, the value of skewness for employment and value added was 2.69 and 4.2 respectively; while the value of kurtosis was 8,4 and 17.9 respectively. The positive value for skewness show a positive skew, while the positive value for kurtosis indicates a distribution that is more peaked than normal. The positive skew of the histograms indicates that there are some *kabupaten/kotamadya* that possess high industrial density (in terms of employment and value added), while most of them contain very low industrial density. Indeed, there is an evidence of spatial concentration in Indonesia's cigarette clove industry. We differentiate between industrial and non-industrial areas by setting a certain criteria

Table 7. Rank and Classification of Kabupaten/Kota in terms of Value-added in Clove Cigarette Industry: Indonesia, 1999-2003

1996				1999				2003			
Class	**Province**	**District**	**Value Addded (Rp000)**	**Class**	**Province**	**District**	**Value Addded (Rp000)**	**Class**	**Province**	**District**	**Value Addded (Rp000)**
Very high	Jatim	Kediri*	4.494.485.100	**Very high**	Jatim	Kediri*	10.000.000.000	**Very high**	Jatim	Kediri*	19.368.522.724
	Jatim	Surabaya *	1.912.411.199		Jatim	Surabaya*	6.080.000.000		Jatim	Surabaya	6.600.384.153
	Jateng	Kudus	856.928.206		Jateng	Kudus	1.680.000.000		Jateng	Kudus	4.431.699.443
	Jatim	Malang *	790.421.591		Jatim	Malang*	1.220.000.000		Jatim	Malang*	3.102.108.131
High	Jatim	Malang	49.094.883	**High**	Jatim	Malang	99.386.007		Jateng	Semarang*	542.230.211
	Jateng	Semarang*	18.006.610		Jatim	Pasuruan	46.061.654		Jatim	Malang	405.341.942
					Jatim	Mojokerto*	45.465.215		Jatim	Jombang	284.536.840
					Jatim	Tulungagung	42.253.572		Jatim	Pasuruan	218.344.514
					Jatim	Sidoarjo	36.173.342	**High**	Sumut	Pematang Siantar*	53.867.634
					Jateng	Surakarta*	25.476.590		Jatim	Kediri	21.885.161
					Jateng	Semarang*	25.385.455		Jatim	Sidoarjo	65.157.747
					Jateng	Pati	20.907.486		Jatim	Mojokerto	35.302.023
									Jatim	Ngawi	17.145.141
									Jatim	Lamongan	22.115.977
									Jatim	Mojokerto*	50.019.510
									Jateng	KarangAnyar	20.822.629
									Jateng	Rembang	42.524.310
									Jateng	Pati	74.790.276
									Jateng	Jepara	46.555.804
									Jateng	Surakarta*	57.264.946

Note. * = City/Kotamadya
Source: Calculated from BPS (2004), Setiawati (2006)

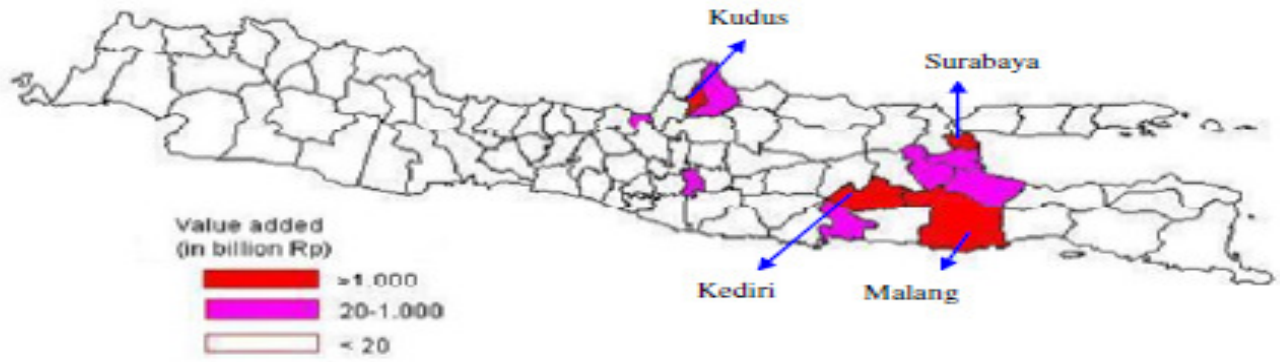
(i.e. very high, high,moderate, low) based on the total employment and value added of each *kabupaten/kotamadya*. Industrial areas are identified by either “high” or “very high” industrial density in terms of both employment and value added (Table 6 and Table 7). The criteria of ‘high’ and ‘very high’ industrial *kabupaten/kotamadya* are: having between 1,000 and 6,000 workers or more than 6,000 workers respectively and; (2) generating between Rp15-100 billion or more than Rp100 billion of value added respectively. These criteria are applied simultaneously. Most of the top *kabupaten/kotamadya* with ‘very high’ total employment and value added are found in Central Java and East Java province, particularly in and around Kudus, Kediri, Surabaya, and Malang. In other words, the main clusters of clove cigarette industry are found in these four districts. In 1996, those four districts accounted for 81,09% in terms of employment. In 1999, the four districts remained to give larger contribution than those of

Table 8. Share of Four Districts in Total Unit of Establishments in Clove Cigarette Industry

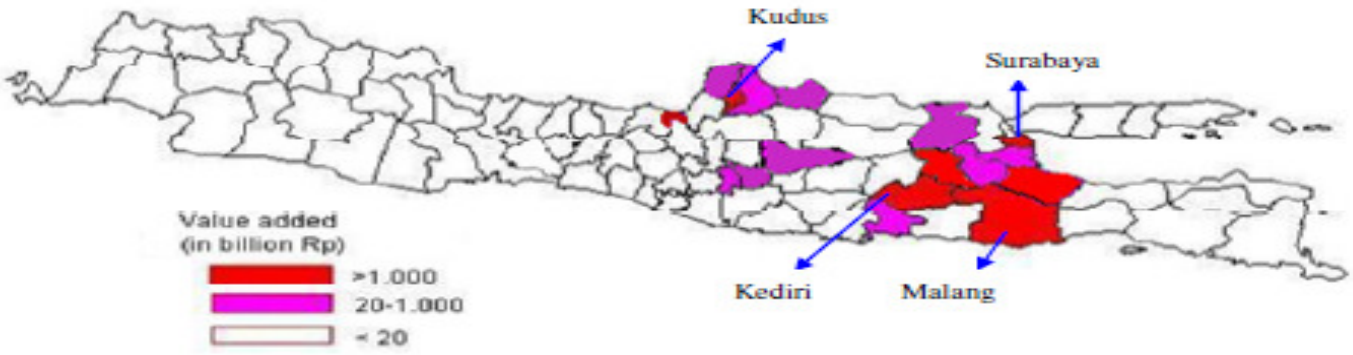
Region		Number of establishments		
Province	**Kabupaten/Kota**	**1996**	**1999**	**2003**
Jateng	**Kudus**	51	53	48
Jatim	**Malang**	30	28	24
Jatim	**Surabaya**	3	3	3
Jatim	**Kediri**	2	2	2
Total		86	86	77
% to total establishment in Indonesia		45,03%	41,75%	37,20%
Memo items:				
% to total employment in Indonesia		81,09%	77,78%	72,59%
% to total value added in Indonesia		98,23%	97,88%	94,13%

Source: Calculated from BPS (2004), Setiawati (2006)

MAP 1. Main Clusters of Clove Cigarette Industry in Java, 1999



MAP 2. Main Clusters of Clove Cigarette Industry in Java, 2003



other districts in Indonesia, albeit declined slightly to be 79% (Table 8). Their shares in terms of value added are far more striking: accounted for more than 97% during 1996-1999. Map 1 and 2 highlights the dominance and locations of four districts in generating value added in Java island in 1999 and 2003.

We see from Table 8 that there is degradation of contribution of area with very high class to clove cigarette

Table 9. *Specialization Index of Clove Cigarette Industry, 1999-2003*

Districts	Employment	Employment	1999			2003		
	Clove Cigarette Industry	Manufacturing Industry	Eir	Eit	Sirt	Eir	Eit	Sirt
Central Java								
Kudus	50.523	68.983	0,7300	0,0465	15,7500	0,7762	0,0553	14,0366
Blora	1.004	1.927	0,5200	0,0465	11,2100	0,5383	0,0553	9,7336
Magelang*	374	2.188	0,1700	0,0465	3,6800	0,0667	0,0553	1,2055
Pekalongan*	1.988	13.670	0,1500	0,0465	3,1300	0,0854	0,0553	1,5451
Pati	1.639	14.780	0,1100	0,0465	2,3900	0,1014	0,0553	1,8339
Batang	1.200	12.393	0,1000	0,0465	2,0800	0,0734	0,0553	1,3279
Surakarta*	1.514	15.722	0,1000	0,0465	2,0700	0,1024	0,0553	1,8525
Semarang*	4.097	79.899	0,0500	0,0465	1,1000	0,0472	0,0553	0,8527
Jepara	1.277	30.788	0,0400	0,0465	0,8900	0,0605	0,0553	1,0948
Karanganyar	959	40.315	0,0200	0,0465	0,5100	0,0384	0,0553	0,6938
Sukoharjo	934	48.274	0,0200	0,0465	0,4200	0,0144	0,0553	0,2606
Boyolali	101	18.835	0,0100	0,0465	0,1200	0,0046	0,0553	0,0826
Kendal	26	19.508	0,0000	0,0465	0,0300	n.a	n.a	n.a
East Java		.						
Kediri*	37.508	42.902	0,8700	0,0465	18,8100	0,9059	0,0553	16,3812
Blitar*	1.641	1.951	0,8400	0,0465	18,0900	0,8261	0,0553	14,9389
Malang*	29.165	41.290	0,7100	0,0465	15,1900	0,6011	0,0553	10,8701
Ngawi	2.275	5.626	0,4000	0,0465	8,7000	0,4470	0,0553	8,0833
Tulungagung	3.286	12.123	0,2700	0,0465	5,8300	0,0644	0,0553	1,1647
Lamongan	3.171	11.836	0,2700	0,0465	5,7600	0,2525	0,0553	4,5661
Malang	6.210	31.470	0,2000	0,0465	4,2400	0,2057	0,0553	3,7196
Mojokerto*	801	4.226	0,1900	0,0465	4,0800	0,0874	0,0553	1,5810
Tuban	1.523	8.287	0,1800	0,0465	3,9500	0,2158	0,0553	3,9023
Surabaya*	29.843	162.887	0,1800	0,0465	3,9400	0,2049	0,0553	3,7046
Bojonegoro	1.227	8.473	0,1400	0,0465	3,1100	0,2833	0,0553	5,1232
Nganjuk	255	3.308	0,0800	0,0465	1,6600	0,1339	0,0553	2,4219
Probolinggo	759	9.871	0,0800	0,0465	1,6500	0,0974	0,0553	1,7618
Pasuruan	5.772	79.853	0,0700	0,0465	1,5500	0,0895	0,0553	1,6191
Mojokerto	2.058	31.945	0,0600	0,0465	1,3900	0,0874	0,0553	1,5810
Jombang	794	13.143	0,0600	0,0465	1,3000	0,1995	0,0553	3,6068
Pamekasan	50	1.449	0,0300	0,0465	0,7400	n.a	n.a	n.a
Sidoarjo	4.834	168.193	0,0300	0,0465	0,6200	0,0292	0,0553	0,5283
Blitar	55	2.480	0,0200	0,0465	0,4800	n.a	n.a	n.a
Trenggalek	35	1.660	0,0200	0,0465	0,4500	n.a	n.a	n.a
Madiun	22	2.959	0,0100	0,0465	0,1600	n.a	n.a	n.a
Jember	114	37.278	0,0000	0,0465	0,0700	0,0018	0,0553	0,0316

industry in Indonesia although amount of added value and employment in four the districts. It implies that there is improvement of added value and employment in other area, which do not the included in very high class, so that lessen the share of four districts in clove cigarette industry in Indonesia.

Table 8 also indicates that Kudus, Kediri, Malang, and Surabaya have played an important role in number of establishment. In fact, number companies in those four districts declined slightly from 45% in 1996 to 42% in 1999. Together with their dominant share in terms of employment and value added, these districts indeed constitute location of main clove cigarettes producers in Indonesia. Those industrial clusters happened due to minimisation of either production cost or transport cost. According to Marshall (1919), industrial cluster emerged because of skilled worker concentration, spatial proximity of suppliers, and knowledge spillover. Historically, growth of clove cigarette in Indonesia started from those four districts (Castles, 1967). Therefore, not only skilled workers can be easily found in these districts, but specialist suppliers have also focused their activities in and around these regions.

Specialization index is a measure of concentration of an industry in a cluster, which many previous studies believe raises the rate of technological progress (see for example Marshall, 1919, Porter, 1990). High specialization index in one particular industry will presumably quicken growth of the industry. We find that average value of industrial specialization of clove cigarette in Indonesia is equal to 4,15. As the value exceeds one, it implies that clove cigarette industry in Indonesia give opportunity of high labour absorption. Table 9 shows that the four districts have high specialization index: Kudus 15.75, Kediri 18.81, Surabaya 3.94 and Malang 15,19 in 1999.

Table 10. Key Explanatory Variables in the Empirical Study

Variables	Explanation	Hypothesis
Market share (MS)	Market share of each firm by production workers	Higher market share will increase industrial performance
Research & Development (RD)	R&D spending	Higher R&D spending will increase industrial performance
Productivity (PROD)	Productivity of labour (ratio of output to workers)	Higher productivity will induce higher industrial performance
Concentration Ratio (CR)	CR4 as a proxy of market structure	Higher CR will tend to encourage higher industrial performance
Industrial clusters (DR)	Regional Dummy for industrial clusters, 1=districts with very high and high in terms of employment, 0=otherwise	Regional variation matters in industrial performance
Time dummy (D)	Time Dummy, 1=2003, 0=otherwise	Time variation matters in industrial performance

Key Determinants of Industrial Performance

Most of the empirical studies on SCP and clusters have not tried to assess the relative merits of competing theories across industries or regions. Previous empirical studies vary considerably according to the following respects. First, we may discriminate between studies which use sectorally disaggregated production data (e.g. Henderson & Kuncoro, 1996) and those which use aggregate production data (e.g.Krugman, 1991). Second, we can differentiate between studies that apply regression analysis (e.g.Gelder, 1994; Mody & Wang, 1997), location choice model (e.g.Kuncoro, 1994), or descriptive empirics (e.g. Amiti, 1998).

Perhaps the most intuitive method to estimate the relative merit of various location and industrial theories is to regress a measure of industrial performance over a set of determinants as identified in the theories or previous empirical studies (Brulhart, 1998; Kim, 1995; Kim, 1999). The performance of clove cigarette industry will be examined by using value added of firms in every region.

We believe that there is no single theory that may become the most "suitable" explanation of the industrial performance in a particular region and at a particular time. The "nature" of those variables is derived either from theories or previous studies. Those variables are selected on the basis of analytical considerations and an attempt to test SCP and cluster models. More specifically, we will employ some principal explanatory variables as follows (Table 10).

We postulate the following model to estimate the clove cigarette industry performance, by combining the SCP and industrial cluster paradigm:

$$PERFORMANC \quad E = \beta_1 + \beta_2 MS + \beta_3 RD + \beta_4 PROD + \beta_5 CR + \beta_6 DR + \beta_7 D + \varepsilon \quad \ldots(1)$$

where PERFORMANCE is represented by value added of firms in each district. Each variable, except time dummy and industrial clusters, has been transformed into natural logarithm.

The empirical results estimating the equation of 1 are a bit sensitive to the variable included. We apply some methods suggested by Belsley, *et al.* (1980). These methods have proved useful in a sensitivity analysis of empirical study of industrial growth in Coastal China (Mody & Wang, 1997). First, to what extent dropping one observation at a time, or sets of observations (excluding from regression a province, a year, an industry, a district-industry, a year-industry, and a year-district) influence the coefficients. Second, to what extent adding or dropping independent variables brings an effect on the signs and magnitude of the coefficients. The last is shown by comparing full and best model. We perform the sensitivity analysis tests by using White Heteroskedasticity Test, redundant and omitted variable(s) test. As we introduce either regional dummy or time dummy, the results show some improvement in the goodness of fit.

Table 11, which provides estimation results for 82 observations during the period 1999-2003, presents an empirical support for models of industrial performance based on industry-specific and regional-specific variables. Market Shares (MS), Productivity (PROD), Concentration Ratio (CR) constitute industry-specific variables that influence industrial performance significantly. Likewise, industrial clusters (DR) as a regional-specific variable also explains industrial performance as well.

Our findings suggest that SCP and cluster paradigm can be used to explain the performance of clove cigarette industry. CR4 explained industrial performance better than Market Share. The CR variable is found statistically significant with positive sign. This positive sign shows that higher CR will tend to encourage higher industrial performance. The PROD variable is also found statistically significant with positive sign. It shows that

Table 11. Determinants of Clove Cigarette Performance

Variable	Full Model	Best Model
Constant	10.59* (9.42)	10.32* (10.75)
Market Shares (MS)	2.23 (1.23)	-
Concentration Ratio (CR)	0.81* (8.39)	0.89* (12.91)
Research & Development (RD)	0.02 (0.60)	-
Productivity (PROD)	0.37* (3.00)	0.41* (3.80)
Time Dummy (D)	0.75*** (1.98)	0.67** (2.18)
Industrial clusters (DR)	1.695* (6.25)	1.65* (6.55)
Adjusted R^2	0.847	0.851
F Statistic	63.90	97.84
Durbin-Watson stat	1.50	1.49

Note: *, indicate statistical significance at the 0.01 level .
**, indicate statistical significance at the 0.05 level.
***, indicate statistical significance at the 0.1 level.
The dependent variable is natural logarithm of value added as indicator of industrial performance. All regressions are are tested by White Heteroskedasticity-Consistent Standard Errors & Covariance test. The t-statistics are in parentheses.

higher productivity will induce higher industrial performance. The industrial cluster variable also has positive impact on performance. It means that regional variation is matters in industrial performance.

The impact of R&D spending on industrial performance has not shown significantly. This may imply that most of clove cigarette firms have not spent much on R&D. This result contradict with Scott (1984) and also Lunn & Martin (1986) study. Scott argued that competitive concentration ratio and R&D may exhibit the inverted U relationship, while CR has positive impact on R&D until some point and has the opposite impact if exceeds the point. Lunn & Martin found that the more concentrated the industry the more industries spend on R&D.

CONCLUSIONS

Our study offers some interesting findings with respect to clove cigarette industry in Indonesia. Clove cigarette industry in Indonesia has been proved having an oligopolistic structure with high concentration ratio in terms of CR4 and CR8. Interestingly, although barrier to entry in this industry is relatively high, new players kept entering this industry. Economic crisis, which culminated in 1998, did not change the industrial structure of clove cigarette in Indonesia drastically. In many markets, including most Asian countries, key issues for foreign producers are market liberalization and overcoming government-controlled monopolies. Indonesia is a unique case. It does not have a cigarette monopoly, but rather a large number of independent producers, including foreign companies that have been present since the colonial era.

Our analysis shows that the persistence of high industrial concentration is coincided with high spatial concentration. We have identified the main clusters of Indonesia's clove cigarette industry in only two provinces, namely Central Java (Kudus) and East Java (Kediri, Surabaya and Malang). In each cluster, the top largest companies played a dominant role. This is the most striking feature of Indonesia's clove cigarette industry in which four giant cigarette companies clustered heavily in four districts: PT Djarum in Kudus, PT Gudang Garam in Kediri, PT HM Sampoerna in Surabaya and PT Bentoel in Malang. Those four districts have not only "very high" industrial density in terms of employment and value added, but also have specialization index more than one.

Cigarette makers in Indonesia have weathered the economic turmoil over 1999-2003 in reasonable condition. Cigarette sales were highly inelastic and had remained strong leading to a remarkable performance in terms of value added, employment, and export. The tax rate and the minimum prices, combined with minimal overhead, made hand-rolled kreteks extremely profitable, with margins up to 40 percent higher than the machine-rolled variety. This explains why industrial performance of clove cigarette industry has shown favorable condition amid the crisis. Our analysis using regression and pooling data

found that the industrial performance can be explained by SCP and cluster theories. Productivity, concentration ratio, time dummy and industrial clusters influenced industrial performance significantly.

In the absence of clearly defined spatial objectives in national planning, government policies have fostered the centralization of industrialization in Indonesia. Indeed the centralization of industrialization, leading to spatial imbalance, is not a uniquely Indonesian phenomenon. Such centralization and imbalances have been found in both the developed and developing countries (Kuncoro, 2007). Nevertheless, in Indonesia industrial centralization follows from administrative and political centralization. The shift in the government policy towards liberalization in the mid-1980s has reinforced, rather than reduced, the nature of spatial orientation of manufacturing industries towards Java and to lesser extent Sumatra. These policy shifts, which deregulated the economy and reduced policy distortions, had the additional effect of stimulating further growth and spatial concentration in several districts, as have been shown in the case of clove cigarette industry.

Our findings suggest the importance of a new perspective on industrial "targeting" policy. The ongoing debate about industrial policy is about the effectiveness of selective government intervention in fostering industrial growth (e.g. Grant, 1995; Pack, 2000). In general, industrial policy can be classified into *sectoral* and *horizontal* measures (Cowling, 1999). The former comprises various measures that are designed to target specific industries or sectors within an economy. The latter intents to direct the overall performance of the economy and the competitive framework in which firms do their businesses. The "traditional" industrial policy is often associated with targeting of sectors and industries regardless where these sectors locate within a country. By contrast, the new perspective of industrial policy seems to favour horizontal measures and reject targeted sectors. In this context, a spatial perspective on industrial development is one of the key factors that could help the central and local government in formulating industrial policy.

Very recently, the Indonesian government has given attention to clustering and regional core competence perspective in the new National Industrial Development Policy (*Kebijakan Pembangunan Industri Nasional*). The benefit of industrial clusters is to encourage product specialisation and to change comparative advantage into competitive advantage. Regional core competence is designed to boost the leading industrial subsectors/products in every province. In line with this policy direction, understanding the locations, causes, and consequences of clustering is imperative. Our study on clove industrial clusters and the determinant of its performance serves as a valuable input to the local and central government in formulating the new direction for industrial policy.

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