

Factor Analysis Of Competitiveness Small Medium Industry Case In Serdang Bedagai District, North Sumatra, Indonesia

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Abstract: Small Medium Industry (SMI) is one of important sector for Indonesia economy, especially for the region/province development. Because of the North Sumatra province government has to indentify the competitiveness of SMI industry of every districts and analysis what are dominant factors that has a high competitiveness of SMI at Serdang Bedagai Districts, thus it can make contribution for government program and activity to increase SMI. The SMI competitiveness research analysis based on the five aspects, such as capital, production, promotion, management, and sales. The reseach sample of Serdang Bedagai Distric t are 100 SMI where spread at 15 Sub-Districts. The reseacrh have found that two sub-Districts has high competitiveness, such as Pantai Cermin Sub-Distric and Sei.Rampah Sub-District. Meanwhile, factor analysis found that promotion aspect and production aspect are dominant factors for SMI competitiveness at Serdang Bedagai Distric (North Sumatra-Indonesia) with Variance Explaine 35,65 %. Therefore, both aspects (promotion and production are importan factor of Serdang Bedagai District government to enhance the SMI.

Index Terms: Minimum 7 keywords are mandatory, Keywords should closely reflect the topic and should optimally characterize the paper. Use about four key words or phrases in alphabetical order, separated by commas.

1 INTRODUCTION

Serdang Bedagai District has many kind of small medium industry (SMI) in North Sumatra region, not only a food sector but also processing sector. Based on Indonesia Bank has made the characteristic of UKM, such as create job opportunity aspect, create competitiveness, economy growth aspect, market available, employee absorption aspect, and capital acessibility, price, production/technology tools, available of skill employee, technology and business management. Based on the characteristic above, hopely the original product distric can be enhanced to be a competitive product where support the economy of people. This condition is supported by research of [1], where the finding is the competitive aspect at Serdang Bedagai District is a food industry. Tirtayasa [2] found that production aspect, raw material, distribution, and promotion has positif and significant relationship with small and medium industry performance in Medan City and the relationship are moderated by government role and finacial institution. Furthermore, is important to know that the competitiveness of sub-district based on the aspects of Indonesia Bank. Meanwhile, it is important to know what dominant aspects of competitiveness at Serdang Bedagai District (Nort Sumatra). Based on the Agreement of Asean community (MEA), thus the research of small medium industry (SMI) competitiveness at Serdang Bedagai District is important to do.

Research Objective

To answer the research question, thus the research objectives are follows :

1. To indentify the competitiveness of small medium industry in serdang Bedagai District based on sales aspect, capital aspect, promotion aspect, and management aspect.
2. To analysis the competitiveness of small medium industry in Serdang Bedagai based on sales aspect, capital aspect, promotion aspect, and management aspect.
3. To analysis what is dominant aspects of competitiveness in small medium industry in Serdang Bedagai

Literature Review

Definination on Small Medium Industry

Small medium industry (SMI) is an industrial business activities that has assets up to 5 billion rupiah exluding land and building, and annual turn over of up to 25 billion per year. SMI is an activity to transfrom raw material into good/product with using machaninary, labor, or other tolls. Small Medium Industry (SMI) according to ministry of industry are follows :

1. Modern Small Industry included small industries which use intermediete process technology, has limited production scale, depend on the support of large and medium size industries and domestic/export marketing system, using special machine tolls and othercapital equipment.
2. Traditional small industry is small industries using simple process technogy and small capital, located in rural site and has limited access to the market.
3. Small Craft industry is small industry using middle technology process or even using hightech process.

Problem of Small Medum industry

According to [3], the impact of economy crisis in Indonesia to the Small Medum Industry are : high intrest rate of credit, high cost import of raw material, high cost of machine, tolls, and spare part, problem of cash flow as the impact of debt payment.

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The Competitiveness of Business

Value chain model by Porter, M.E. [1] was used to identify and analyze the competitiveness of SMI based on the primary activity and secondary/support activity. There are two steps of value chain analysis, such as identifying blocks building (the activities on technology and strategy are different). The primary activities are inbound (raw material), marketing and sales, and service. Meanwhile, support activities are as follows:

1. Material management
2. Technological Development (R&D)
3. Human Resources Management
4. Infrastructure, (see the Graph 1 below).

The business will have competitiveness if the business can be analyzed the business internal environment (Weakness and Strength) based on the efficiency and effectiveness, thus it can create Small Medium Industry (SMI) Low cost business process. If this condition can be created by SMI at Serdang Bedagai District, hopefully SMI at Serdang Bedagai District can compete with other SMI District in Indonesia. [4] found that adopting innovation has a positive and significant relationship with SMI performance. Meanwhile, [5] had studied about the relationship of supply chain strategy and Small Medium Enterprise (SME's) performance found that innovation adoption and consumer orientation can enhance SME's Performance in Pakistan and Canada. Furthermore, [6] had studied about innovation strategy and SME's learning process, found that SME's has to concern of innovation strategy to enhance their performance. According to [7] has studied barrier potential within SME's and found that resource limitation and industry complexity were the important factors in SME's competition. Meanwhile, [8] had studied that marketing, Brand, price, distribution, and service are the factors to enhance SME's competitiveness. Moreover, [9] studied consumer response within industry, found that consumer response positive and significant relationship with SMI performance. Furthermore, [10] had studied the research of internal environment and change of external environment within organization, where they found that Innovation and strategic approach are important to win on business competition.

Methodology

The study employed the survey method using a structured questionnaire [11]. This is the most appropriate method for drawing responses when the geographical dispersion is large, such as the case of Indonesia [11]. The survey questionnaire gathered information on Company Characteristic, sales aspect, capital aspect, production aspect, promotion aspect, and management aspect based on the value chain model by Michel.E. Porter. Research Population are 1940 industries based on Central Berau Statistics (Biro Statistik 2015) where the industries dispersion at 17 sub districts in Serdang Bedagai District. The sample size are 100 industries based on Slovin formula. The data collection spanned the period from February to the end of June 2017. The analysis method using quantitative method, such as weight analysis and factor analysis. Twenty three items measuring competitiveness were adapted from value chain model. The responses of 23 items measuring competitiveness were elicited on 3-point scale, ranging from "1" Low, "2" Medium, and "3" High.

Findings

A. Descriptive Analysis

Serdang Bedagai District consist of 15 sub-district, most of them located in rural area and only Perbaungan subdistrict and Sei.Rampah district shows city characteristic. SMI at Serdang bedagai dominated of home industries (crackers and dodol), agriculture industries, (ginger food, potato flour, Oyster mushroom, and Galangal), Marine industries (mangrove syrup, Salted fish, Souvenir), Convection (Praying Convection, Embroidery). Most of industries are small industry, only convection at Teluk Mengkudu District, Peanut Bread at Sei.Rampah District, processing machine at Perbaungan, and Tofu at Tebing Tinggi District, classified as Middle Industries. Most of industries problem are capital, raw material, equipment, and marketing. The located subdistrict is near of the beach area had specific problems such as weather (see Table 1).

Table 1
Profile of Small Medium Industry at Serdang Bedagai District

No.	Sub-District	Types of Industry	Number of Worker (people)	Industry Problem
1	Tebing Tinggi	Crackers , cat fish, Tofu	4 -15	Capital and Weather
2	Tebing Syahbandar	Crackers banana, bread, furniture	2-15	Capital and Weather
3	Sei Bamban	Brick, ginger food, tuber cracker	3-7	Raw material, Capital, Raw material and Weather
4	Perbaungan	Dodol, Brick, Crackers, manggrove syrup, sweet potato flour, processing mechine	3-10	Skill Worker
5	Dolok Merawan	Sugar and Tofu	2-4	Raw material, equipment
6	Dolok Masihul	Oyster mushroom, Tofu, sweet potato flour	2-6	Raw material, equipment
7	Sei Rampah	Peanut Bread	10-15	Skill Worker
8	Teluk Mengkudu	Praying Convection and Salted fish	15	Capital , weather, and marketing
9	Bintang Bayu	Emping chips	3-5	Raw material
10	Bandar Khalifah	Salted fish	2-4	Capital , weather, marketing, and limitation of government support
11	Sipispis	Tofu and Toy Car	2-8	Capital and marketing
12	Silinda	Galangal	1	Capital and marketing
13	Pegajahan	Crackers and Brick	2-4	Capital , weather, raw material, and marketing
14	Pantai Cermin	Souvenir and Salted fish	2-6	Capital , weather, and marketing
15	Tanjung Beringin	Embroidery	5-10	Capital and equipment

Competitiveness Analysis

Based on matrix competitiveness analysis, only two sub-district having high competitiveness (compete) at Serdang Bedagai districts such as Sei Rampah Sub-District with

Peanut Bread industry and Pantai Cermin Sub-District with Souvenir and Salted fish. Both Sub-Districts were measured with four dementions, such as Sales, Capital, Production, Promotion, and Management (see Table 2).

Table 2
Competition Analysis of Small Medium Industry At Serdang Bedagai District

No.	District	Sales	Capital	Production	Promotion	Management
1	Tebing Tinggi	Not compete	Not compete	Compete	Compete	Compete
2	Tebing Syahbandar	Not compete	Not compete	Compete	Compete	Not compete
3	Sei Bamban	Not compete	Compete	Compete	Compete	Not compete
4	Perbaungan	Compete	Compete	Compete	Compete	Not compete
5	Dolok Merawan	Not compete	Not compete	Compete	Not compete	Not compete
6	Dolok Masihul	Compete	Compete	Compete	Compete	Not compete
7	Sei Rampah	Compete	Compete	Compete	Compete	Compete
8	Teluk Mengkudu	Not compete	Not compete	Not compete	Compete	Compete
9	Bintang Bayu	Not compete	Not compete	Not compete	Not compete	Not compete
10	Bandar Khalifah	Not compete	Not compete	Not compete	Not compete	Not compete
11	Sipispis	Not compete	Not compete	Compete	Compete	Not compete
12	Silinda	Not compete	Not compete	Not compete	Not compete	Not compete
13	Pegajahan	Compete	Not compete	Compete	Compete	Not compete
14	Pantai Cermin	Compete	Compete	Compete	Compete	competete
15	Tanjung Beringin	Not compete	Not compete	Compete	Compete	competete

Factor Analysis

Factors analysis has using component factor analysis and rotation component matrix, the results showed KMO measure of sampling eduquacy was 0,587 (see table 3), indicating sufficient intercorelations while the barlett's that sphericity proved to acceptable ($Z^2 = 362.103$, $p < 0.01$). This analysis also foun that five factors solution eigenvalues greater than 1,0 and total variance explained of solution with eigenvalues 72,19 %. The criterion of Iqbaria et.al (1995) was used the interpret the rotated factors, which were each item should load 0.50. (see Table 4.

Table 3
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.587
Bartlett's Test of Sphericity	362.103
Approx. Chi-Square	136
df	.000
Sig.	

Table 4
Factor Analysis

Industry	Component				
	1	2	3	4	5
Following the exhibition product	.520	.653	.352	.016	-.050
Promotion product using promotion media	.779	.035	.230	.291	.175
Promotion facility from government	.694	.071	-.351	-.355	.230
Raw material readiness	.187	-.032	.028	-.030	.721
Owner of production facility	-.220	-.030	.481	.294	.571
Machine and technology production	.080	.084	.013	-.031	.635
Standar operational of Production	-.323	.694	.085	.375	.224
Government certification of Product	-.206	.168	.850	.064	.216
Laboratory test to fulfill health standart	.161	.154	.878	.149	-.084
Innovation product	.131	.817	.030	-.159	.122
Concern on quality product	-.043	.673	.052	.101	-.193
Amount of business assets	.849	.114	-.060	-.005	-.096
Bank Capital Access	.063	.243	.411	.511	.420
Capital	-.358	.213	.074	.779	.202
Sales/ ommsset	.329	.717	.172	-.072	.187
Sales growth	.129	-.225	.147	.679	-.282
Product market	.816	.061	-.071	-.290	.216
Eigenvalue	3,282	2,779	2,271	1,920	1,878
Variance Explaine (71,19)	19,307	16,349	13,361	11,295	11,049

To measure dominant factor, this research also using rotated factors, which the factors grouping criterion (see Table 5). Thus, the dominant factors are grouping such as :

Factor 1, consist of:

- Promotion product using promotion media
- Promotion facility from government
- Amount of business assets
- Product market

Factor 2, such as:

- Following the exhibition product
- Standar operational of Production
- Innovation product
- Concern on quality product
- Sales Turnover

Factor 3, such as:

- Government certification of Product
- Laboratory test to fulfill health standart

Factor 4, consist of:

- Bank Capital Access
- Capital
- Sales growth

Factor 5, consist of:

- Raw material readiness
- Owner of production facility
- Machine and technology production

Table 5
Dominant Factors

Items	Correlation	Factor
Promotion product using promotion media	.779	V1
Promotion facility from government	.694	V1
Amount of business assets	.849	V1
Location of product market	.816	V1
Following the exhibition product	.520	V2
Standar operational of Production	.694	V2
Innovation product	0.817	V2
Concern on quality product	0.694	V2
Sales turnover	0.717	V2
Government certification of Product	0.850	V3
Laboratory test to fulfill health Standart	0.878	V3
Bank Capital Access	0.511	V4
Capital	0.779	V4
Sales growth	0.679	V4
Raw material readiness	0.721	V5
Owner of production facility	0.571	V5
Machine and technology production	0.635	V5

Based on the factor analysis above, this research found that factor 1 (promotion aspect) and Factor 2 (production aspect) are dominant factors for SMI competitiveness at Serdang Bedagai Distric (North Sumatra-Indonesia) with Variance Explaine 35,65 %.

Discussions and Conclusions

The first finding showed that SMI at Serdang Bedagai had characteristic as home industries, agriculture industries Marine industry, and Convection. The condition of SMI at Serdang Bedagai is also illustrating the general condition of SMI in Indonesia, where the district is located near beach it is dominated by Marine industry and rural area dominated by home industry, agriculture industries, and Convection. Most of SMI Serdang Bedagai is still using traditional method to produce their product, thus to increase the production they need more capital or capital access to buy machine. Furthermore, most of the owner of SMI are uneducated person (low level education) so they have not enough knowledge of marketing to increase their sales. Therefore, government has to focus with both aspects, for instance government role as agent of change with making relationship of banking/financial institution and support of large industry to Small Medium Industry. The second finding showed that only two sub-district have high competitiveness (high compete) at Serdang Bedagai Districts such as Sei Rampah Sub-District with Peanut Bread industry and Pantai Cermin Sub-District with Souvenir and Salted fish. Both sub-districts have more local raw material, many of skill workers, and still using limited modern machine, and has high market accesibility/ location of market near of the industries production. Thus, it can be concluded that the business process of this industries more low cost. This finding is also supported by [8, 12] found that resources limitation and industry complexity are the important factors in SME's competition. The third finding showed that marketing and product aspect are dominant aspect to measure SMI competitiveness at Serdang Bedagai District.

Furthermore, marketing aspect are supported by [6,13] found that marketing, Brand, price, distribution, and services are the factors to enhance SME's competitiveness. Moreover, [9] found that consumer responsive positif and significant relationship with SMI performance. Meanwile, the product aspect were supported by [7], [11], [12], [13] they found that innovation strategy can enhance the SMI performance. Innovation strategy can be applicationed with using adoption innovation from the large industry with doing a learning process. Thus, goverment role is very important to support the SMI at Serdang Bedagai District, for instance making market accesibility, capital accessibility, training and education for using modern method, and marketing knowledge.

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