

ANALYSIS OF VALUE CHAIN TO INCREASE APPLE CHIP SMES COMPETITIVENESS

Amanatuz Zuhriyah*

Department of Agribusiness, Faculty of Agriculture, Brawijaya University, East Java,
Indonesia, amanatuz@trunojoyo.ac.id

Syafrial

Department of Agribusiness, Faculty of Agriculture, Brawijaya University, East Java,
Indonesia

Budi Setiawan

Department of Agribusiness, Faculty of Agriculture, Brawijaya University, East Java,
Indonesia

Djoko Koestiono

Department of Agribusiness, Faculty of Agriculture, Brawijaya University, East Java,
Indonesia

Abstract

Apple chips SMEs in Malang Raya have an important role in national economic growth. The purpose of this study was to analyze the value chain and competitiveness of apple chip SMEs in Malang Raya. Technical analysis of research data using the Analytical Hierarchy Process on 23 Apple Chip SMEs located in Malang Raya. The results showed that the overall final score on the value chain performance of Apple Chips UKM in Malang Raya for sub-activities that had the excellent category were operations, marketing and sales, purchasing, technology development, and company infrastructure. While the good category is found in the sub-activities of inward logistics, outward logistics, services and human resource management. The results of the calculation of competitiveness performance are included in the excellent category, while indicators that have the excellent category are indicators of demand conditions, firm strategy, structure and rivalry, and government. Meanwhile, the good category was obtained from the factor conditions and related and supporting industries sub- indicators .

Keywords: Apple chips SMEs, competitiveness, value chain

1. Introduction

There are many apple orchards in Malang Raya, one of Indonesia's most populous cities. Batu and Poncokusumo are Malang Raya's two primary apple production hubs (Rahayu and Muhandoyo, 2014). In 2018, the Central Statistics Agency reported that Indonesia produced 481,651 tons of apples. Meanwhile, East Java produced 480,961 tons of apples in 2018. Malang

Raya is responsible for 40.55 percent of East Java's total apple production and for 40.49 percent of Indonesia's overall apple output (Novia et al., 2020). Manalagi, Rome Beauty, and Ana apples are some of the most popular varieties grown in Malang (Ishartati and Ruhayat, 2016). Malang is known for its apples, which have become the city's symbol. For the sake of the apple processing sector, the Malang area could be a lucrative market. Visitors from both local and foreign countries flock to Malang Raya's numerous tourism attractions. Malang is a great destination for tourists interested in nature, history, and culture (Soseco, 2011).

Processed meals and beverages made from apples are more valuable than raw apples. Apple chips are one processed apple food product that can be produced. Apple chips can be made from 0.2875 kg of fresh apple raw material for every one kilogram of fresh apple raw material. In 2018, Malang Raya produced 483.48 tons of apple chips from 195,023 tons of fresh apples. A bag of Apple Chips costs about Rp 4,467 and is typically made from grade 3 fresh apple raw material. For every kilogram of fresh apple raw materials, a product worth Rp 34,212.5 can be created. It will produce an additional value of Rp. 16,316.7 with a 48 percent value added ratio if the cost of raw materials and other input contributions are taken into account (Wulansari, 2019). Apple chips, which are manufactured from apples and are popular souvenirs from Malang, are the most popular processed food in the city. In their paper by Mallini et al. if the increase of processed apples is not countered by an effective marketing plan, it will have a negative influence on the United States' ability to compete with apples and processed apples imported from other countries. A good value chain enhancement is required to ensure that the marketing plan and competitive advantage are properly implemented.

As a means of looking at a business, the value chain depicts a series of actions that transform inputs into products of value to customers or is a way to comprehend the value chains that make up a product (Crain and Abraham, 2008). Actions that differentiate products, activities that lower product costs, and activities that may promptly address customer needs all contribute to the value of the product (Pearce and Robinson, 2007).

Value chain dynamics include: upgrading, value chain regulation, power utilized by corporations in partnerships, collaboration and competition between companies, as well as the flow of knowledge and learning outcomes across companies. These are all components of the whole value chain. Value chain performance can be evaluated by measuring marketing efficiency (Kumar and Rajev, 2016). Implementing the value chain can be difficult, as seen by attempts to improve it through strategic value chain development. Stagnation and even setbacks in the value chain signify that no progress has been made throughout the implementation period of the value chain or that each operator in the chain is suffering a void in the advantages they receive. Value chain stagnation or setbacks can be eliminated in a number of ways, and the value chain can also be developed or upgraded (Rofaida, 2012).

In Malang, small and medium-sized enterprises (SMEs) account for the vast majority of the processed apple producers; yet, despite the SMEs' substantial output, their monthly production appears to be poorly organized. Even over the course of a year, production may fall short of its normal potential. In the same way, customers in Malang are still restricted to local

marketplaces for SME items that do not yet have an Indonesian National Standard license in terms of sales and marketing (Latifah, 2016).

Malang Raya is home to a slew of micro, small, and medium-sized enterprises (MSMEs) that turn low-quality apples into higher-quality processed goods with additional value and a higher profit margin. Apple chips are a processed apple product of inferior quality. Apples are used as raw material for the production of apple chips by 20 small and medium-sized enterprises (SMEs) in Malang Regency. Apple-processed SMEs in Malang face a number of challenges, including a lack of market access, a lack of financing, a lack of business experience, and a lack of collaboration with other organizations (Mustaniroh et al ., 2016). SMEs in the apple-processing industry also have trouble estimating the number of apple chip products to be produced and are constrained in their ability to do so (Mallini et al ., 2015).

Ten countries (the United States, Germany, Denmark, South Korea, UK, Italy, Sweden and Switzerland) were studied in Porter's Competitive Advantage of Nations based on their economic features. The study took four years and involved 100 different industries (Oz, 2002). Market segmentation, product differentiation, technological differentiation, and economies of scale are all part of Porter's strategy, which is more comprehensive than previous approaches that only focused on costs (Bakan and Doan, 2012). Using Porter's Diamond Model, competitiveness may be defined at the macro and micro levels for both products and services at the same time (Shafaei, 2009). Using Porter's diamond model, a country's ability to compete in the global marketplace is measured by its ability to generate value for its citizens (Smit, 2010).

According to Chiarvesio et al. (2004), dynamic strategic behavior in terms of innovation, suppliers, and markets, as well as the ability to structure and manage business networks, can help companies become more competitive. MSMEs have a substantial competitive advantage, according to Leachman et al. (2005) and Kharub and Sharma (2015), but they also face management issues, a lack of strategic planning, poor institutional roles, and a lack of technical and financial assistance. marketing. According to Prajogo (2020), marketing strategy is the major focus of challenges that must be concentrated on the competitive advantage of small and medium enterprises. The importance of MSMEs in developing countries' economies has been well documented (Uddin and Bose, 2013). Malang Raya's apple chip SMEs are the focus of this study, which examines their value chain and competitiveness.

2. Methods

This research was conducted in Malang Raya. Data collection was obtained from 23 respondents who are owners of apple chips SMEs in Malang Raya. The data analysis technique uses AHP n to analyze the value chain and competitiveness of apple chip SMEs in Malang, while the performance assessment of primary and secondary activities based on the Snorm De Bour value is compared with the performance indicators from Volby . Value chain analysis refers to Porter's (1985) theory which states that the value chain is supported by primary and secondary activities. Primary activities include inbound logistics, operations, outbound logistics, marketing, and services. Secondary activities as well as procurement, technology

development, human resource management and infrastructure.

The instrument used in increasing competitiveness is Diamond Porters's. The competitiveness component used in this study refers to the statement of Sun *et al.* (2010) , include: 1) factor conditions , Barragan (2005) explains that factor conditions are inputs used in production operations (availability of raw materials) and creation (innovation), 2) demand conditions , referring to conditions domestic market in a country and demand conditions, 3) related and supporting industries , related to MSME competitors processed apples and support from partnerships, 4) firm strategy, structure and rivalry related to marketing strategy, market structure, and competition patterns in certain industries, and 5) The role of the government (government) related to policies and regulations that benefit the growth of the domestic industry so that it can indirectly increase the competitiveness of the country itself.

3. Results and Discussion

3.1. Value chain analysis

The results of the value chain analysis for calculating the final value of activities, sub-activities and conversions at 23 apple processing SMEs in Malang are shown in Table 1. The final value chain calculation is done by multiplying each normalization score that has been obtained from the Snorm De Boer normalization formula with a weight of each scope of activity, sub-activity and conversion.

Table 1. Calculation of the final conversion value

Activity	Sub Activities	Conversion	Score	Weight	Value	Total
Primary	Inward logistics	Raw material inventory	100	0.372	37.25	86.96
		Raw material storage	74	0.300	22.14	
		Use of raw materials	84	0.328	27.57	
	Operation	Maintenance of equipment and machinery	99	0.332	32.73	99
		Apple chips production process	100	0.336	33.58	
		Product packaging	99	0.332	32.73	
	Outbound logistics	Finished material handling	100	0.575	57,50	85
		Distribution	65	0.425	27.72	
	Marketing and Sales	Promotion	97	0.330	32.01	99
		Marketing Reach	99	0.333	32.85	
		Product pricing	100	0.337	33.70	
	Service	After-sales service	84	0.319	26.81	90
Interaction with retailers		84	0.319	26.81		

		Interaction with end consumers	100	0.362	36.22	
Secondary	Purchase	Equipment purchase	100	0.500	50.00	100
		Raw material purchase schedule	100	0.500	50.00	
	Human Resource Management	Employee recruitment	70	0.314	21.85	76.57
		Scheduling working hours	70	0.314	21.85	
		Compensation	88	0.372	32.86	
	Technology Development	Equipment equipment	100	0.500	50.00	100
		Production machine capacity	100	0.500	50.00	
	Enterprise Infrastructure	Management	93	0.486	45.08	94
		Finance	100	0.514	51.40	

Table 1 shows that the highest conversion value weight for handling finished materials or handling apple chip products is 0.575 in the outward logistics sub-activity, while the lowest is in the raw material storage conversion of 0.300 in the inward logistics sub-activity. The high weight on the handling of the finished product, because the handling of the finished product of apple chips is very important in maintaining product quality and consumer confidence. Meanwhile, the low weighting on the conversion of raw materials is due to the fact that many apple chip SMEs have limitations in storage when the apple harvest occurs. The calculation of the final value of the value chain is shown in Table 2.

Table 2. Calculation of the final value of dimensions

Activity	Sub Activities	Total each dimension	Information	Weight	Final score	Total each process	Score	Total each Value	Final score
Primary	Inward logistics	86.96	good	0.204	15.00	92,694	0.610	92,694	56.524
	Operation	99	Excellent	0.227	15,893				
	Outbound logistics	85	good	0.132	15,893				
	Marketing and Sales	99	Excellent	0.226	25,774				
	Service	90	good	0.210	19,107				

Secondary	Purchase	100	Excellent	0.238	13,2 45				
	Human Resource Management	76.57	good	0.292	29,8 45				
	Technology Development	100	Excellent	0.238	26,4 90	92,33 4	0.39 0	92,33 4	36,0 29
	Enterprise Infrastructure	96	Excellent	0.232	23,5 75				
	Total (Excellent)								

Table 2 shows that the overall final score on value chain performance for primary and secondary activities is in the excellent category, because it has a value of 92.95. The sub-activities that have the excellent category are in the operations sub-activity with a total value of 99, marketing and sales of 99, purchasing of 100, technology development of 100, and company infrastructure of 96. While the good category is found in the sub-activities of inward logistics, outbound logistics, services and human resource management. According to Volby (2000), if the score (Suorm score) is in the 70-90 interval, it is included in the good category, while the 90-100 interval is in the excellent category. Porter (1985), primary or secondary activities that have the highest scores are activities that have the potential to create value for the industry in the value chain to produce value-added products, while the activities with the lowest scores are activities that need attention, because they are still not optimal in creating added value. in the company's value chain.

Szłapka et al. (2017), the value chain map is used to find out the chain functions that are implemented and identify the contribution/role of each chain operator involved. Lee et al. (2017) stated several things about the value chain, namely the structure and dynamics of the value chain. The value chain structure includes all companies in the chain which are distinguished by five elements: end markets, business and supporting environment, vertical relationships, horizontal relationships, and supporting markets. The dynamics of the value chain consists of: upgrading, regulation of the value chain, the power used by companies in their relationships, cooperation and competition between companies, and the transfer of information and learning outcomes between companies. One indicator to assess value chain performance is to measure marketing efficiency.

3.2. Competitiveness Analysis

The results of the analysis of competitiveness using Porters' diamonds in calculating the final value for activities, sub-activities and conversions at 23 apple processing SMEs in Malang are shown in Table 3. The calculation of the final value of competitiveness is done by

multiplying each normalization score that has been obtained from the Snorm normalization formula. De Boer with the weight of each scope of activity, sub-activity and conversion.

Table 3. Calculation of the final value of the competitiveness sub-indicator

Indicator	Sub indicators	Score	Weight	Score	Total each dimension
Factor conditions	Availability of raw materials	100	0.362	36.22	89.63
	Labor costs	80	0.307	24.48	
	Access to capital	88	0.331	29.24	
Demand conditions	Doing promotions	91	0.486	44.36	95
	Expanding marketing network	99	0.514	50.67	
Related and Supporting Industries	Conduct financial and computerization training	90	0.368	33.06	80
	Cooperating with the government	84	0.351	29.47	
	Improve foreign language skills	61	0.281	17.13	
Firm strategy, Structure and Rivalry	Carry out e-commerce strategy	97	0.330	32.01	99
	Maintain product quality	99	0.333	32.85	
	Making improvements to packaging design	100	0.337	33.70	
Government	Government policy support	84	0.468	39.36	93
	Capital support	100	0.532	53.18	

Table 3 shows the highest sub-indicator value weight on capital support with a score of 0.532 on the Government indicator, while the lowest on the sub-indicator of increasing foreign language skills of 0.281 on the Related and Supporting Industries indicator. The high weighting on capital support, because many apple chip SMEs during the pandemic were closed due to declining sales and government policies during the pandemic. Meanwhile, the low weighting of the sub-ndicators of improving foreign language skills is due to the lack of or never being included in foreign language training and the lack of support from SME owners for increasing foreign language skills of their employees. The calculation of the final value of the competitiveness sub-indicator is shown in Table 4.

Table 4. Calculation of the final indicator value

Sub Indicator	Total each dimension	Information	Weight	Final score	Final Total Score
Factor conditions	89.63	good	0.299	20.617	91.140

Demand conditions	95	Excellent	0.160	15,181
Related and Supporting Industries	80	good	0.208	16.609
Firm strategy, Structure and Rivalry	99	Excellent	0.246	24,285
Government	93	Excellent	0.156	14,448

Table 4 shows that the overall final score on competitiveness performance is included in the excellent category, because it has a value of 91.40. Indicators that have the excellent category are in the *Demand conditions sub-indicator* with a total value of 95, *Firm strategy, Structure and Rivalry* of 99, and Government of 93. While the good category is obtained in the *Factor conditions sub-indicator* with a value of 89.63 and *Related and Supporting Industries of 80* . According to Volby (2000), if the score (Suorm score) is in the 70-90 interval, it is included in the good category, while the 90-100 interval is in the excellent category.

Barragan (2005) explains that factor conditions are inputs used in production operations and infrastructure needed to compete in certain industries. The key to the condition factor according to Porter (1990) is the creation (innovation). An interesting condition is explained by Porter (1990) that the scarcity of resources can actually encourage a country to be more competitive because they have succeeded in creating new things that make the country more competitive. *Demand conditions* , referring to the domestic market conditions in a country. Demand conditions are the most interesting dimension because they are related to the nature of consumers (Hazlett *et al.* , 2005). *Firm strategy, Structure and Rivalry* , is related to strategy, market structure, and competition patterns in certain industries. Competition is a basic indicator in the preparation of corporate structure and strategy (Watchravesringkan *et al.*, 2010). The pattern of competition affects the innovation process and in the end will increase achievement in the international arena (Manevska-Tasevska and Rabinowicz, 2021). Bakan and Doğan (2012) , opportunity factors are understood as internal and external conditions that occur outside the company's control, such as social conditions, trends in a country's political direction, security symptoms, innovation factors, financial market conditions or exchange rates, global spikes or regional demand, input cost discontinuities, other radical technical changes in both biotechnology and microelectronics

4. Conclusion

overall final score on the value chain performance of Apple Chip SMEs in Malang Raya for primary and secondary activities is in the excellent category. Sub-activities that have an excellent category are operations, marketing and sales, purchasing, technology development, and company infrastructure. While the good category is found in the sub-activities of inward

logistics, outward logistics, services and human resource management. The results of the calculation of competitiveness performance are included in the excellent category, while indicators that have the excellent category are indicators of demand conditions, firm strategy, structure and rivalry, and government . Meanwhile, the good category is obtained from the factor conditions and related with supporting industries sub-indicators .

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