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# Analysis the Competitive Advantage of Arabica Gayo Coffee Organic in Indonesia

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## ABSTRACT

Coffee is one of the strategic and important commodities in Indonesia. In Aceh Province, coffee is one of the local superior commodities. Coffee production is a driving force in the economy of Aceh, particularly in the Gayo highlands. With no large private or state-owned plantations, this \$150 million export industry is built on a foundation of smallholder farmers managing small plots that average less than 1.5 hectares with few inputs. With high international demand for the high body, the coffee receives high export prices and an efficient value chain with high levels of competition for coffee at various points along the process delivers a large proportion of that to the farmers. This study takes an in-depth look at the Arabica Gayo coffee organic sector, particularly focused on the current state of the coffee value chain and its implications for the competitive advantage of Arabica Gayo coffee organic which is originated from Indonesia.

**Keywords:** Arabica gayo coffee organic, value chain, farmer field school, and competitive advantage.

## INTRODUCTION

Indonesia is one of the largest coffee exporting countries in the world<sup>1,2</sup>, and the Aceh province is the biggest producer of Arabica Gayo coffee organic<sup>3-5</sup>. Coffee production is a driving force in the economy of Aceh, particularly in the Gayo highlands. With no large private or state-owned plantations, this is \$150 million popular export commodity to several countries like Europe Union, USA, and Japan<sup>6</sup> and built on a foundation of smallholder farmers managing small plots that average less than 1.5 hectares with few inputs and basically haven't economically income<sup>7</sup>.

The global coffee market is quite problematic for growers. Global coffee prices have been subject to wild fluctuations, with resulting issues for smallholder farmers reliant on this crop for their income<sup>8</sup>. These problems are caused by unfair trade<sup>9,10</sup>, various constraints on production, processing and marketing so supply chain sustainability of arabica Gayo coffee organic is very hard to the realization<sup>7,11</sup>. These days, the emergence of new paradigms and approaches of extension are shifting towards to the empowerment of farmers<sup>12</sup>. Farmer Field

School (FFS) is one of the models and approaches widely used<sup>13</sup>.

The research objective are to analyse the competitive advantage of arabika Gayo coffee organic which is originated from Aceh province, Indonesia. Besides, to identify factors influencing knowledge, attitude and practice on coffee management practices among FFS participants.

## Related Research

The theory of 'comparative advantage' says that any trade is better than no trade and that if everyone concentrates on the one thing that they are best at, and sells this on the market then everyone will benefit<sup>14,15</sup>. However other studies show an increasing gap between poor and rich in the developing countries<sup>16</sup>. Competitive advantage generally goes to the stronger economy, not the weaker<sup>14</sup>.

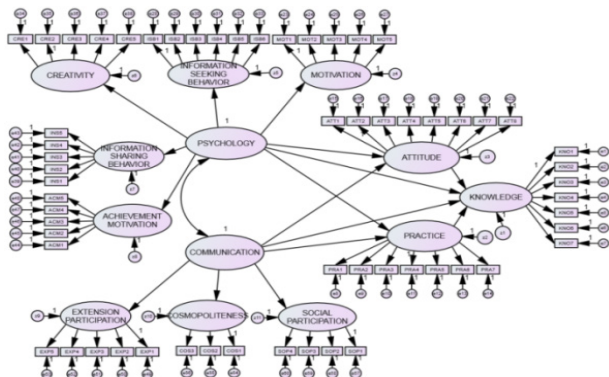


Figure 1: Conceptual framework

Clearly there is a need for an expanded research program on alternative extension model in developing countries, and yet research on extension is chronically under-funded<sup>17</sup>. The FFS approach is generally considered to build on the critical theoretical framework of ‘knowledge and human interest’.

Several studies of global value chains in the coffee and other agricultural commodities<sup>18, 19, 20</sup> have highlighted the shifting nature of corporate control due to weakened state regulation and disintegration of international conventions<sup>21</sup> and increased the power of large corporate roasters within their supply chains<sup>22</sup>.

Proposed Method

Structural Equation Modeling

This study uses quantitative research by blending three research methods, namely, exploratory research, descriptive research, and causal research<sup>23</sup>. Likewise; the multivariate technique such as structural equation modeling is deployed in this study for data analysis<sup>24</sup>.

System Dynamic Approach

In sustainability perspective of Arabica Gayo coffee organic, the main activities were to mapping supply chain structure which is including all actors and activities<sup>14</sup>. The output from the first step would be used as input to system dynamic approach<sup>14, 25</sup>.

Research Methodology

The study has employed a descriptive research design. As far as sampling is concerned, based on the pilot learning of coffee FFSs, from Aceh Tengah and Bener Meriah district. Totally 302 respondents were selected based on the simple random sampling method<sup>23</sup>. Data were analyzed using different quantitative and qualitative statistical procedures and methods.

RESULTS AND DISCUSSIONS

A sample of 302 participants (45.36% male, and 54.64% female) participated in the study. Age range was from 25 to 35 years old. Results suggested that individuals had a high knowledge and experience with the product category (i.e. organic coffees). The mean value for product knowledge is five on a Likert scale of seven points and the size of individual coffee fields varied between 0.5 and 10 ha; less than 1% of the members had more than 5 ha of coffee.

Knowledge and Human Interest

The theoretical model proposed in this research (see Figure 1) suggests the use of structural equations modeling. The results of the SEM model demonstrates that all of the goodness-of-fit indexes were within the recommended ranges. Thus, the result of testing the structural research model was acceptable<sup>26</sup>.

Table 1. Comparisons of goodness-of-fit indices of SEM models

GOF Indices	Criterion Guidelines	SEM Results
Chi-square ( $\chi^2$ )		
Chi-square		209.415
Degree of freedom		92
Probability	p>.05	.000
Absolute fit measures		
GFI	>.80	.871
RMSEA	<.10	.087
RMR	<.05	.026
SRMR	<.05	.044
Normed chi-square	<3	2.415
Incremental fit measures		
NFI	>.90	.914
CFI	>.90	.923
Parsimony fit measurement		
AGFI	>.80	.825
PNFI	>.50	.743

Based on this model, the relationships between the constructs as reflected in the hypotheses statements are shown in Table 2.



**Table 2. Testing the hypotheses of the structural research model**

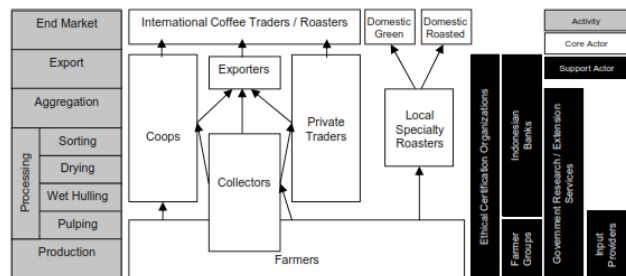
Hypothesized Path	Std. Estimate	Critical Ratio	Hypothesis
H1: Psychology -> Attitude	0.797	16.756***	Supported
H2: Psychology -> Practice	0.606	9.564***	Supported
H3: Communication -> Attitude	-0.260	-2.709 (ns)	Not Supported
H4: Communication -> Practice	0.477	5.182***	Supported
H5: Psychology -> Knowledge	0.984	9.514***	Supported
H6: Communication -> Knowledge	0.691	11.103***	Supported
H7: Attitude -> Knowledge	0.082	1.293 (ns)	Not Supported
H8: Practice -> Knowledge	0.339	5.673***	Supported

\*\*\*significant at  $p < 0.01$ , ns: not significant

Table 2 shows that the standardised estimate ( $\beta$ ) of the path between psychology and attitude (0.797), psychology and practise (0.606), communication and practice (0.477), psychology and knowledge (0.984), communication and knowledge (0.691), and practice and knowledge (0.339) were significant. Therefore, Hypothesis 1, 2, 4, 5, 6, and 8 were supported. Hypothesis 3 and 7 was not supported as the p-value was not significant.

**Supply Chain Structure**

The value chain for Arabica Gayo Coffee Organic is difficult to generalize, as farmers, collectors, and aggregators play a broad range of roles simultaneously. Figure 2 provides a generalized picture of the flow. Core actors handle the coffee, while supporting actors provide services to core actors.



**Figure 2: Arabica gayo coffee organic value chain**

In this research, basic problems on arabica Gayo coffee organic supply chain structure was the gap of quality specification and benefit among each actor<sup>7</sup>. The business activities in the Gayo highlandshave existed in a long time, but until now it has not given better livelihood for farmers, although several certifications have been implemented, for instance, the fair-trade,

organic,geographic indicationand rain-forest.

This occurred due to the unfair trade conducted by the buyers<sup>9</sup>, so necessary a real effort to solve that problem by fair benefit distribution for each actor.

Most of the farmers work in a very isolated way reducing their chances to be more competitive. Social organizations try to organize them to get them certified, this statement is supported by<sup>10</sup> while they state that most buyers collude to keep farmers isolated and hence get better prices. The Fairtrade Foundation state that the certification is needed because the little knowledge that farmers have of the market and this leaves them in disadvantage<sup>27</sup>.

**CONCLUSION**

This research concluded that farmer’s psychology, communication, and practice in coffee management practices were the most important independent variables which had significant influence on the knowledge of Farmer Field School (FFS) members. basic problems on arabica Gayo coffee organic supply chain structure was the gap of benefit among each actor and quality specification. Most of the farmers work in a very isolated way reducing their chances to be more competitive.

One of the strengths of any research is to recognize its limitations. The first limitation relates to sampling. Thus, the sample used in this study does not represent the population of the Indonesian coffee organic. The second limitation relates to the variables contained within the research model. The study focuses on coffee industry in Indonesia area.This research could be replicated in other developing countries to find out the structure

of competitive advantage in different geographic areas. Conducting such studies could enhance the representativeness of the results in developing countries.

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