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Impact of Arabica Coffee Production on Social Welfare: A Comprehensive Analysis

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Abstract

The flavor and quantity of Arabica coffee are considered to be superior to those of Robusta coffee, and Arabica coffee also contains a lower amount of caffeine. Arabica coffee production and community welfare are known as factors Y in this study. Labor, consumption, land area, and distribution are referred to as variables X. This study was conducted using the Path Analysis method in Sinaman II Village to Pamatang Sidamanik District, Simalungun Regency. Using the SPSS program version 24.0 for Windows, the data that was collected from the distribution of questionnaires was processed. Through the use of arabica coffee output as an intervening variable in Sinaman II Village, the objective of this study is to investigate the impact that these important or positive aspects have on the well-being of farming communities. The findings, which were based on path analysis, demonstrated that the wellbeing of the community is influenced collectively by the independent variables of labor, consumption, land area, and distribution. Additionally, the production of Arabica coffee is able to accommodate any and all circumstances.

Keywords:
Coffee, Production, Welfare, Land Area, Distribution

Introduction

The creative economy can encourage the coffee industry to become a superior product, which is expected to be able to stimulate the community's economy and create jobs. The creative economy itself is a new concept that was born and developed in the sustainability of the Indonesian economy, and this concept is the basis of the Indonesian economy today. In the creative economy, natural wealth and everything in it has the potential for development(Faried, Amruddin, et al., 2023)and the development of the Indonesian economy as a developed country and utilizing this potential intelligently, innovatively and creatively(Sartika et al., 2022). Government initiatives to improve the economy and increase wages. Expanding existing local products(Faried, Purba, et al., 2022)to create new industrial jobs(Sembiring & Faried, 2019).

Table 1.1 Plantation Area and Arabica Coffee Production from Plantation Plantations

City District	Plantation Area and Production of Arabica Coffee from People's Plantations by Regency/City					
	Planted Area (Ha)			Production (tons)		
	2018	2019	2020	2018	2019	2020
North Sumatra	77765.00	77765.00	77834.00	66831.00	66831.00	67469.00
Mandailing Christmas	3554.00	3554.00	3564.00	2332.00	2332.00	2533.00
South Tapanuli	4608.00	4608.00	4606.00	2098.00	2098.00	2103.00
North Tapanuli	16467.00	16467.00	16468.00	15213.00	15213.00	15220.00
Toba Samosir	4784.00	4784.00	4788.00	4187.00	4187.00	4403.00
Simalungun	8217.00	8217.00	8233.00	10324.00	10324.00	10523.00
Dairy	12088.00	12088.00	12099.00	9612.00	9612.00	9613.00
Karo	9198.00	9198.00	9205.00	7402.00	7402.00	7403.00
Deli Serdang	713.00	713.00	711.00	666.00	666.00	663.00
Step up	75.00	75.00	75.00	78.00	78.00	78.00
Humbang Hasundutan	12044.00	12044.00	12057.00	9677.00	9677.00	9683.00
Pakpak Bharat	959.00	959.00	964.00	1085.00	1085.00	1084.00
Samosir	5058.00	5058.00	5064.00	4157.00	4157.00	4163.00

Source: North Sumatra Province Plantation Service 2021

North Sumatra Province has 25 districts and 8 cities. From the table above you can see the land area and amount of coffee production each year and some districts and cities that are not mentioned in the table are not included as coffee producers. One of the Arabica coffee producing districts in North Sumatra province is Simalungun Regency. Based on the table above, it shows that Simalungun Regency is one of the largest producers of Arabica coffee plants in North Sumatra province, with production of Arabica coffee plants in 2020 reaching 10,523 tons. Simalungun is one of the coffee producing areas in North Sumatra province. The Simalungun region, which is at an altitude of 1,100-1200 meters above sea level, has an average temperature of 22 to 31 degrees Celsius, which is very suitable for making coffee. Land area and production of coffee plantations in the Simalungun area.

Table 1. 2 Land area and production of coffee plantations in 2019-2020 in Simalungun Regency

Land Area/Production	Year	
	2019	2020

Land Area (ha)	10,198	10.211
Coffee Production (tons)	12,048	4,229.1

Source: Central Statistics Agency (2021)

According to data from the Simalungun Central Statistics Agency, the production of Arabica coffee (Coffe Arabical) and robusta coffee (Coffea Canephora). In the Simalungun area, the coffee plantations owned are community plantations.

Table 1. 3 coffee plantations in 2019-2020 in Simalungun Regency

Types of Coffee	Year/kg	
	2019	2020
Arabica	10,324.00	3,588.57
Robusta	1,724.00	710.53

Source: Central Statistics Agency (2021)

Based on this, it can be seen that there was a decline in production of each type of coffee from 2019 to 2020. Arabica coffee experienced the highest decline, namely 6,735.43 kg, while robusta coffee experienced a decline, namely 1,013.47 kg. This is because the impact of the COVID-19 pandemic has resulted in a significant decline in coffee production. The residents of Sinaman II Village and the people of North Sumatra view Arabica coffee as the same as other coffees that are widely produced in various regions. Arabica coffee in Sinaman II Village is still not classified as a cultivated plant. This can be seen from the results of coffee production which are not yet optimal. It can be seen from the fact that there are still very few people who plant Arabica coffee plants and tend to prefer planting rice, corn and sweet potatoes, as the main agriculture. This occurs as a result of the farming culture of the Simalungun community which still adheres to the principle that agriculture is the main livelihood as well as a means of fulfilling primary household needs such as rice farming, part of the results of which can be used as rice for food needs. In fact, based on information from farmers who have planted Arabica coffee in Sinaman II Village, it can be categorized that Arabica coffee plants are very promising from an economic perspective for farmers.(Okto Berman, Payerli Pasaribu, 2021). Saabas Coffee House is one of the MSME companies which operates in the fields of coffee cultivation, coffee processing, coffee marketing as well as training and development of coffee agribusiness. In the marketing aspect, the company is experiencing difficulties and has not yet optimized marketing through digital marketing. Apart from that, Saabas Coffee House already has social media to market coffee products, but the efforts made are still not optimal.

Table 1.4 Demand and supply of Sabaas Coffee in 2020

Product	Demand (kg)	Offer	Gap(kg)
Arabica Coffee	1,500	7000	-
Robusta Coffee	500	1,000	-
Total	2,000	8,000	6000

Source: Saabas Coffee House (2021)

TableIt can be seen from the gap that it is quite high. This shows that marketing on social media is not running optimally(Faried et al., 2019), so Kopi Saabas should be able to expand marketing through digital marketing by utilizing e-commerce as a marketing medium. With digital marketing, the marketing carried out by Kopi Saabas is expected to expand the scope of market segments and increase profits for the company.

Literature Review

The Production Function connects input with output and determines the optimal level of output that can be produced(Faried et al., 2020)with a certain number of inputs or vice versa(Faried, Sembiring, et al., 2022). The production function is determined by the level of technology used in the production process(Basmar et al., 2021; Marit et al., 2021), Therefore the input-output relationship for a production system is a function of raw materials, labor(Faried, Hasanah, et al., 2022; Gandasari et al., 2021), equipment, technology and others used by the company. The Cobb Douglas Production Function is a function or equation that involves two or more independent variables and a dependent variable, the independent variable in question is the input from the production process (labor, raw materials, machines) and the dependent variable in question is the output of the production process in the form of goods(Khairunnisa et al., 2022; Sudarmanto et al., 2021). Land and land functions above, it can be concluded that land is the most important factor in this agricultural sector(MM Simarmata et al., 2021). Land has a very high economic value, so it will benefit farmers(Purba et al., 2023). In agriculture, fertile land is valued at a higher value than infertile land. Income distribution is divided into three main social classes, namely workers, capital owners and landowners(Faried et al., 2021). The three of them determine three production factors, namely labor, capital and land area. The income earned by each factor is considered as the income of each trained family towards national income(Sembiring & Faried, 2020).

Methods(12pt, bold)

The population used in this research is the entire community of Arabica coffee farmers in Sinaman II Village, Pamatang Sidamanik District, Simalungun Regency. The population in this study was 228 people. The samples in this study were managers and farmers producing Arabica coffee. So the sample that could be selected based on the criteria was 114 respondents who were farmers and Arabica coffee managers. The data analysis technique used to solve the problems in this research is a quantitative analysis technique with the help of the SPSS program. The analytical method used in this research is path analysis.

Results(12pt, bold)

Path Analysis Results

Table 1.5 SPSS Regression I Output Path Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.721a	,519	,502	3,209

a. Predictors: (Constant), Distribution, Land Area, Consumption, Labor

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14,421	1,819		7,928	,000
	Labor	,348	.102	,327	3,393	,001
	Consumption	,661	,083	,687	7,952	,000
	Land area	-.454	.111	-.289	-4.103	,000
	Distribution	-.489	,110	-.442	-4,461	,000

a. Dependent Variable: Production

The sig values of the four variables, labor, consumption, land area and distribution, sig values < 0.05 can be seen in the output coefficient table for regression model I. This finding implies that the variables labor, consumption, land area and distribution in regression model I have a significant effect to production. According to the Model Summary Table, the R Square value is 0.519, labor, consumption, land area and distribution account for 51.9% of production, while other variables not considered in the study account for the remaining 48.1%. Meanwhile, the e1 value can be calculated using the formula e1=√(1-0.519) = 0.481. so that the path diagram of structural model I is obtained as follows:

Regression Model Path Diagram 1

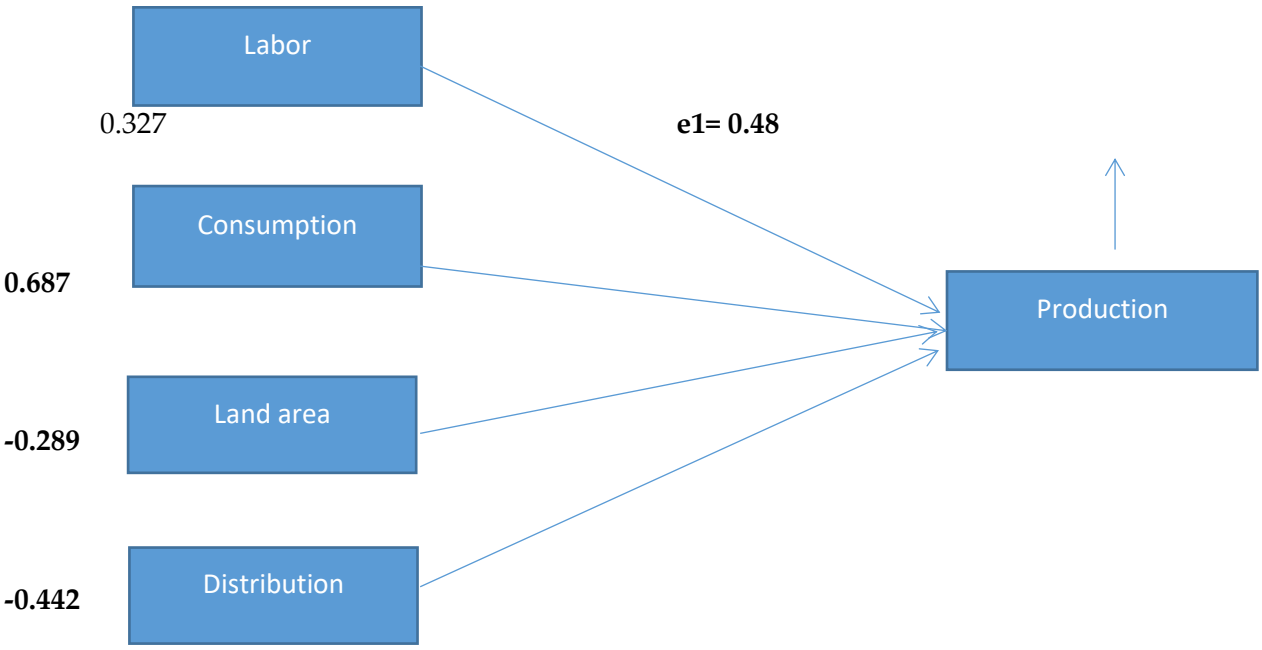

Table 1.6 SPSS Regression II output Path analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,900a	,809	,800	2,054

a. Predictors: (Constant), Production, Distribution, Land Area, Labor, Consumption

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,818	1,462		3,295	,001
	Labor	,568	,069	,528	8,238	,000
	Consumption	-.536	,067	-.550	-8,013	,000
	Land area	-.310	,076	-.195	-4,075	,000
	Distribution	,231	,076	,206	3,031	,003
	Production	,684	,061	,676	11,152	,000

a. Dependent Variable: welfare

The results of the coefficient table of regression model II show that the sig values of the four variables are labor = 0.00 > 0.05, consumption = 0.00 < 0.05, land area = 0.00 < 0.05 and distribution = 0.00 < 0.05 which leads to the conclusion that the factors of labor, consumption, land area, distribution and welfare in regression model I have a significant effect on production. In the model summary, the R Square value is 0.809. According to this, labor, consumption, land area and labor, and welfare account for 80.9% of production, with the remaining 19.1% coming from unknown factors. Meanwhile, the value e2=√(1-0.809) = 0.191. So the second structural path diagram is formed as follows:

Table 1.7 Results of Direct Effect, Indirect Effect and Total Effect Between Variables

Variable	Influence		
	Direct	Indirect	Total
X1→Y1	0.747	-	0.747
X1→Y2	0.405	0.367	0.772
X2→Y1	0.719	-	0.719
X2→Y2	0.449	0.337	0.786
X3→Y1	0.750	-	0.750
X3→Y2	0.356	0.393	0.749
X4→Y1	0.738	-	0.738
X4→Y2	0.343	0.396	0.739

The results of processing using SPSS show that the sig coefficient value of the land area variable is 0.00 <0.05 which leads to the conclusion that the variables of labor, consumption, land area and distribution have a direct influence on the production variable. Based on the management results, the results of the path analysis show that land area can have a direct effect on community welfare and can also have an indirect effect, namely from the influence of labor, consumption, land area and distribution to production (as an intervening variable) and then to community welfare. Based on test results using mediation analysis tests, there is a direct influence of labor on welfare through Arabica coffee production.

Discussion

This is proven by calculating the path analysis of the influence of labor (X1) on community welfare (Y2) through Arabica coffee production (Y1), where it is known that the direct influence exerted by labor on community welfare is 0.405 and the indirect influence is 0.367, which means a direct influence. is greater than the indirect

influence value then Ha is rejected. This means that labor does not have a significant effect through production as an intervening variable or it can be concluded that production is not a mediating or intervening variable between labor and welfare, so production does not function as an intervening variable. Arabica coffee production as a partial intervening variable means that in creating good community welfare, the formation of production is not absolutely only influenced by labor and the production of Arabica coffee received, but is also influenced by other factors outside of labor in creating community welfare. Based on the test results using the mediation analysis test, there is a direct influence of labor on welfare through production. This is proven by calculating the path analysis of the influence of consumption (X2) on welfare (Y2) through production (Y1), which shows that the direct influence that consumption has on welfare is 0.449 and the indirect influence is 0.337, which means the direct influence is greater than the influence value. indirectly then Ha is rejected. This means that consumption does not have a significant effect through production as an intervening variable or it can be concluded that production is not a mediating or intervening variable between consumption and welfare, so production does not function as an intervening variable. The results of this research are also in line with Maslow's theory which states that consumption is oriented towards maximum welfare so as to maintain a balance of needs between individuals and balance between aspects of life. Thus, it can be concluded that increasing consumption and interest in consuming Arabica coffee can increase the amount of production so that farming communities can be more prosperous. Based on test results using mediation analysis tests, there is a direct influence of land area on welfare through Arabica coffee production. This is proven by calculating the path analysis of the influence of land area (X3) on community welfare (Y2) through Arabica coffee production (Y1), where it is known that the direct influence that land area has on community welfare is 0.356 and the indirect influence is 0.393, which means a direct influence. is smaller than the indirect influence value, then Ha is accepted. This means that land area has a significant effect through production as an intervening variable or it can be concluded that production

is a mediating or intervening variable between land area and welfare, so production functions as an intervening variable. Coffee production as a partial intervening variable means that in creating good social welfare, the factors that shape coffee production are absolutely only influenced by the area of land and the coffee production received. Based on test results using mediation analysis tests, there is a direct influence of land area on welfare through Arabica coffee production. This is proven by calculating the path analysis of the influence of distribution (X4) on community welfare (Y2) through Arabica coffee production (Y1), which shows that the direct influence that distribution has on community welfare is 0.343 and the indirect influence is 0.396, which means the direct influence is smaller. rather than the indirect influence value, Ha is accepted. This means that distribution has a significant influence through production as an intervening variable or it can be concluded that production is a mediating or intervening variable between distribution and welfare, so production functions as an intervening variable. This research is in line with Maslow's theory which states that distribution contains a social dimension, namely distribution which concerns how production results are distributed to many people in one society. The distribution of resources and output must be carried out fairly and evenly so as to enable each individual to have the opportunity to realize prosperity for society namely distribution which concerns how the results of production are distributed to many people in one society. The distribution of resources and output must be carried out fairly and evenly so as to enable each individual to have the opportunity to realize prosperity for society namely distribution which concerns how the results of production are distributed to many people in one society. The distribution of resources and output must be carried out fairly and evenly so as to enable each individual to have the opportunity to realize prosperity for society(Faried, Syaula, et al., 2023).

References (12pt, bold)

All references mentioned should be written down in reference using American Psychological Association (APA) style and arranged from A to Z. It should include references obtained from primary sources (consisting of scientific journals amounting to 80% of the entire bibliography) that have been published in the last 10 (ten) years. The remaining 20% may include research articles or research reports (thesis, books, and other relevant publications).

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