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SOCIOECONOMIC FACTORS AFFECTING SIWALAN SUGAR BUSINESS INCOME Case study in Jadung Village, Dungkek District, Sumenep Regency

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ABSTRACT

Siwalan is one of the community's agricultural crops, where this plant is often found in rural areas, and this plant is one of the crops that are managed in the small-scale agricultural business sector, the management of this agricultural business sector is classified as traditional both in terms of management methods and tools, because this business sector is an agricultural business that has been passed down from generation to generation. Palm plants are very beneficial for rural communities, because from all parts of the palm plant can almost be used. The results that can be produced from this plant are sap and palm fiber. The purpose of this research is the first to determine the factors that affect palm sugar business income, the second to determine the most dominant factors that affect palm sugar business income. This type of research is a quantitative study using multiple linear regression analysis method. The object of this research is Jadung Village, Dungkek District, Sumenep Regency with a research sample of 70 respondents. The results showed that the variables age, education, length of business, number of dependents, number of trees, and cosmopolitan level had a significant effect on palm sugar business income. Based on the results of research on socio-economic factors that affect palm sugar business income, it shows that. Socio-economic factors that affect palm sugar business income are age, education, length of business, family dependents, number of trees and cosmopolitan level, both jointly and partially. The most dominant factor that affects palm sugar business income in Jadung Village, Dungkek District, Sumenep Regency is the Number of Trees Factor, this can be seen from the amount of the beta coefficient variable the number of trees which is 0.396 greater than the others.

Keywords: *Keywords: Siwalan, Siwalan Sugar, Socio-economic factors.*

1. INTRODUCTION

Agricultural development plays an important role in the national economy. Where this important role is illustrated by the real contribution through the provision of food, employment, industrial raw materials, sources of income and foreign exchange of the country as well as environmental preservation carried out through environmentally friendly agricultural practices. The income level of farmers for agriculture in a broad sense and narrow agriculture showed an increase indicated by positive growth of 5.64 and 6.20% / year respectively during the period 2018 – 2022.

Currently many agricultural sector businesses are developing among rural communities, agricultural businesses that are growing among the community are small-scale businesses. Small-scale agricultural businesses are generally carried out or managed by rural communities who utilize surrounding agricultural products, from the use of agricultural products the community is able to support the economy and daily needs.

Siwalan is one of the crops of community agricultural products, where this plant is found in many rural areas, and this plant is one of the crops managed in the small-scale agricultural business sector, the

management of this agricultural business sector is classified as traditional both methods and tools for managing it, because this business sector is a hereditary agricultural business. Palm plants are very useful for rural communities, because all parts of the palm plant can almost be utilized. The results that can be produced from this plant are sap and juk. While the outer trunk, endosperm, stick, and roots are parts of the palm tree that have side benefits to support daily life [1]

Small-scale businesses that manage siwalan sugar are quite a lot and have experienced development, this business is a self-managed community business or can be said to be a home industry. Every home industry managed by the community cannot be separated from the influence of several factors that can make the home industry continue to exist and continue, one of the influences that can affect the income of the siwalan sugar business is social and economic influences. Social and economic can have a significant effect on this industry, where socioeconomic factors here consist of age, education, length of business, number of family dependents, number of trees, cosmopolitan level. With some of the factors above it does not rule out the possibility that the siwalan sugar industry can survive or become extinct, considering that siwalan plants can be found in rural areas and can be managed by rural communities so that the industry can continue to exist. But besides that, there are several influencing factors that can also make the business exist or become extinct.

Sumenep is a regency that has many siwalan trees that are managed into siwalan sugar. With an area of siwalan plants reaching 5,542.39 ha. [2]. One of the areas in Sumenep Regency that has the largest area of siwalan is in Dungkek District. In this case, the planting area of siwalan Dungkek District can be seen in table 1.1

Table : 1.1
 Area of siwalan plants, Jadung Village, Dungkek District, Sumenep Regency

No	Desa	(Ha)
1	Jadung	528,40
2	Romben Barat	89,40
3	Romben Rana	89,20
4	Bicabi	298,20
5	Dungkek	247,20
6	Lapa Laok	256,90
7	Lapa Daya	303,30
8	Lapa Taman	580,60
9	Bungin-Bungin	169,60
10	Bunpenang	305,80
11	Taman Sare	435,30
12	Candi	252,70
13	Bancamara	380,70
14	Banraas	282,10

Source : Dungkek sub-district statistics in 2022 figures

From the results of initial observations made on siwalan sugar collectors in Jadung Village, many siwalan sugar home industries in Jadung Village have decreased from year to year. People who used to manage siwalan sugar are now no longer producing because no one continues the siwalan sugar business, with the excuse of choosing to work out of town or even work as construction workers. The results of the initial observations can be seen in the table below:

Tabel: 1.2

The development of siwalan sugar business in Jadung Village, Dungkek District, Sumenep Regency

Tahun	Luas Area	Produksi	Presentase
2020	528,40	188 Ton	0%
2021	528,40	102 Ton	14%
2022	528,40	73 Ton	28%

Data Source: Results of Interviews with 3 Collectors 2023

In the table above, it can be seen that the amount of production continues to decrease in 2020, the amount of production is 118 tons. Meanwhile, in 2021 the amount of production was 102 tons or a decrease of 14% and in 2022 the amount of siwalan sugar production produced decreased very drastically, namely by 73 tons or 28% of the production of siwalan sugar in the previous year.

In the table above, it can be seen that the amount of production continues to decrease in 2017 by 118 tons. While in 2018 the amount of production was 102 tons or a decrease of 14% and in 2019 the amount of siwalan sugar production produced decreased very drastically by 73 tons or 28% of the production of siwalan sugar in the previous year. This happens because of several socioeconomic factors that can affect the income of the siwalan sugar business in Jadung Village. Socio-economic according to Waluya bagja, [3] Is the position or position of a person in a community group determined by the type of activity, education and income. The socioeconomic score in the study consisted of age, education, length of business, number of family dependents, number of trees, and cosmopolitan level.

2. METHODS

The method of data analysis in research is quantitative, by conducting several tests on respondents' answers to obtain accurate and clear data related to the problem. To test the hypothesis, multiple linear regression analysis was carried out using the SPSS for windows program as a test tool.

The respondents in this study were siwalan sugar businesses located in Jadung Village, Dungkek District, Sumenep Regency. The number of respondents taken in

this study was 70 respondents of the siwalan sugar business.

2.1. Gender

Table 2.1
Gender of Siwalan Sugar Business Respondents in Jadung Village, Dungkek District, Sumenep Regency.

No	Jenis Kelamin	Jumlah	Percentase %
1	Laki-Laki	0	0
2	Perempuan	70	100
	Jumlah	70	100

Sumber Data : Primer yang diolah 2023

In table 2.1 is the gender of respondents where in this study the respondents taken were women as many as 70 respondents because women have an important role in doing siwalan sugar business. In the siwalan sugar business starting from the initial process of tool preparation, processing and until it becomes siwalan sugar is carried out by women, and who understand very well about the process of processing siwalan guula namely women or a wife.

2.2. Age of Respondent

The age of respondents in this study was grouped into four (4) categories, from 15-20 years, 21-30 years, 31-40 years, >40 years. The ages of respondents to the siwalan sugar business are as follows:

Table 2.2
Age of Siwalan Sugar Business Respondents in Jadung Village , Dungkek District, Sumenep Regency .

No	Usia responden	Jumlah	Percentase %
1	20-30	0	0
2	30-40	15	21,42
3	40-50	42	60,00
4	>50	13	18,57
	Jumlah	70	100

Sumber: Data Primer yang diolah 2023

Based on the table above, it can be seen that most respondents aged 40-50 years are 60.00% and those aged 30-40 years are 21.42% and those above >50 years old are 18.57%. This means that most respondents to the siwalan sugar business in Jadung Village are still productive workers in carrying out the siwalan sugar business. A person's age can also affect performance, the older a person's age, the results of his work will decrease because his physical strength also decreases, this affects his production.

2.3. Education Level

The level of education is one of the important factors for respondents in doing siwalan sugar business. The education level of respondents in this study can be seen in table 2.3

Table 2.3
Education Level of Siwalan Sugar Business Respondents in Jadung Village, Dungkek District, Sumenep Regency.

No	Jenis Pendidikan	Jumlah	Percentase %
1	Belum Tamat SD	0	0
2	SD	16	22,85
3	SMP	40	57,14
4	SMA	14	20,00
	Jumlah	70	100

Sumber Data : Primer yang diolah

2.4. Data Processing Process

The initial stage is that data coding is carried out to provide specific codes to respondents' answers so that they can be analyzed and implemented properly. In this study, variable Y is coded using numbers 1, 2, 3, 4, number 1 if respondents' income is 0-1 million, and number 2 above if income is above 1 million, number 3 if income is above 2 million, and number 4 if income is above 3 million.

The second stage of validity and reliability tests is carried out to test questionnaires suitable for use as research instruments.

The third stage of the Classical Assumption Test which consists of normality TESTS, multicollinearity tests, detection of multicollinearity symptoms can be done by looking at the VIF value or by means of correlation coefficients between independent variables. A regression model free from multicollinearity is if the regression model has a VIF value of < 10 and the value of the correlation coefficient between independent variables is weak (below 0.5) [4] Autocorrelation test A good regression model is regression free of autocorrelation. The detection of auto correlation is with the Durbin-Watson value (D-W) in the autocorrelation test results.

Table 2.4
Durbin-Watson Velues

Velue	Conclusion
< 1,01	There is autocorrelation
1,01 < D-W < 1,54	No conclusion
1,55 < D-W < 2,46	No autocorrelation
2,46 < D-W < 2,70	No conclusion
>2,91	There is autocorrelation

Source: Widarjono in 2010.

Heteroscedasticity test, Detection of heteroscedasticity is done by looking at the presence or absence of certain patterns in the resulting graphic output. If there is a certain pattern, such as the existing dots forming a regular pattern (wavy, widening, and narrowing) then heteroscedasticity occurs. Meanwhile, if there is no pattern as above, and the points spread above zero on the Y axis, heteroscedasticity does not occur.

Multiple Linear Regression Test

$Y = a + b X_1 + c X_2 + \dots + k X_k$ For testing the hypothesis proposed, the variables to be examined in this study are age, education, duration, number of family dependents, number of trees and cosmopolitan level. Then based on the description above, the multiple linear regression formula is as follows:

$$Y = a + b X_1 + c X_2 + d X_3 + e X_4 + f X_5 + g X_6$$

The F test (F-test) is performed to test whether all independent variables together can affect the dependent variable at a significant level of 5%, with the formula [4]

$$F = \frac{R^2 / k}{(1-R^2) / (N-k-1)}$$

With the following conditions:

1. If the F value is calculated $>$ the F value of the table is 5% then H_0 is rejected
2. If the F value is calculated $<$ the F value of the table is 5% then H_0 is accepted

T-test

The t test is performed to test whether each independent variable individually affects the dependent variable at a significant level of 5%, with the formula [4]

$$t_{bi} = \frac{Bi}{SE_{bi}}$$

With the following conditions:

1. If t count $>$ table t value 5% then H_0 is rejected
2. If the calculated t value $<$ table t value 5% then H_0 is accepted

3. RESULTS AND DISCUSSIONS

3.1. Socioeconomic factors affecting Siwalan sugar business income

3.1.1. Validity and Reliability Test

From the results of SPSS testing on validity and reliability tests that measure the extent to which the accuracy of measuring devices can reveal the concept of measured symptoms. From the results of the validity and reliability test can be seen in Corrated item-total correlation for the Validitas test and Cronbach Alpha for reliability test this can be seen in the table below:

Table 3.1
Validity and Reliability Test Results

Variabel	Cronbach's Alpha	Corrated item-total correlation R hitung	Rtabel	Kriteria
Umur		0,791	0,198	Valid
Pendidikan		0,657	0,198	Valid
Lama usaha		0,635	0,198	Valid
Jumlah Tanggungan	0,872	0,658	0,198	Valid
Keluarga				
Jumlah pohon		0,654	0,198	Valid
Tingkat		0,642	0,198	Valid
Kosmopolitan				

Source: Primary Data processed 2023

In table 3.1 Corrated item-total can be seen from the results of the overall item showing r count greater than r table which is at the level of 0.05 so that it can be concluded that all variables in this study are said to be valid and can be used in research.

Based on table 3.1 of the reliability test results obtained a value of 0.872 on Cronbach Alpha, this shows that the Alpha coefficient is large enough to be greater than 0.60 so that it can be concluded that all items are reliable and suitable for use.

3.1.2. Classical Assumption Test

Based on the results of research conducted from these six variables, it has a significant effect on the business income of siwalan sugar. The significant level used in this study was a significant level of 0.05 whose confidence level was 95% and the error level was only 5%.

Before the formation of a regression model, assumption testing is carried out first so that the model formed provides a BLUE estimate. This assumption test consists of four tests, namely the normality test, autocorrelation test, heteroscedasticity test, and multicollinearity test.

a. Normality Test

Normality testing in this study used the Kolmogorov-Smirnov test by looking at the significance value of Asymp.Sig (2-tailed). Based on table 3.2, the Kolmogorov-Smirnov value is 0.575 with a sig = 0.545 value. Due to the value of sig. $>$ 0.05, it can be concluded that the residual data is normally distributed.

Table 3.2

Faktor-faktor yang mempengaruhi pendapatan usaha gula siwalan

Variabel independen	B	t-Hit	Sig	Asymp.Sig (2-tailed)	Uji Asumsi Klasik	VIF	Durbin-Watson
Umur	-0.273	-2.238	.029		3.138		
Pendidikan	0.227	2.098	.040		2.497		
Lama usaha	0.215	2.170	.034		2.019		
J.T Keluarga	0.200	2.076	.042	0.575	1.962	1.837	
Jumlah Pohon	0.396	3.599	.001		2.503		
Tingkat	0.291	2.854	.006		2.233		
Kosmopolitan							
Konstanta							-0,184
F Hitung							23,984
Adjust R ²							0,696

Sumber: Data Primer yang diolah 2023

b. Multicollinearity Test

The multicollinearity test in this study can be seen with the Variance Inflation factor (VIF) while



the results of the multicollinearity test can be seen in table 3.2

Table 3.2 shows the results that the VIF value of each independent variable is far below 10, namely age = 3.138, education = 2.497, length of business = 2.019, number of family dependents = 1.962, number of siwalan trees = 2.503, and cosmopolitan level = 2.233. So it can be concluded that there is no multicollinearity between independent variables in the regression model.

c. Autocorrelation Test

The test is used to detect the presence of correlation using the Durbin-Watson test autocorrelation test results with the help of SPSS. From table 3.2 obtained a d value of 1.837. These values are then compared with the dL and dU values in the Durbin-Watson table. For $\alpha = 0.05$, $k = 6$ and $n = 70$, $dL = 1.464$ and $dU = 1.768$ were obtained for the value of $4-d_u = 2.232$ so that it can be concluded that there is no autocorrelation in the data.

d. Heteroscedasticity Test

Based on the graph of the results of the Heteroscedasticity test analysis in Appendix 6, it can be seen that the distribution of data does not form certain patterns, and is spread above and below the number 0 on the Y axis, so it can be concluded that this regression model does not have symptoms of heteroscedasticity. Or in other words, the regression model has fulfilled the assumption of homoscedasticity.

3.1.3. Multiple Linear Regression Test

Based on multiple linear regression analysis used to determine the influence of socioeconomic factors on sugar business income, the relationship between age, education, length of business, number of family dependents, number of trees, and cosmopolitan level was obtained. For more details can be seen in table 3.2

3.1.4. Coefficient of Determination

Based on the data above, the R Square value (coefficient of determination) of 0.696 was obtained, thus, a KD value of 69.6% was obtained which shows that age, education, length of business, number of family dependents and the number of siwalan trees have a simultaneous influence (together) showing a very strong relationship of 69.6% to the business income of siwalan sugar. While the remaining 30.4% was influenced by other factors ignored by the authors (not studied in this study).

In table 3.2 the variables that have a significant effect on siwalan sugar business income are age, education, length of business, number of family dependents, number of trees and cosmopolitan level

of the six variables both have a significant influence on siwalan sugar business income.

Based on Table (3.2) above, the regression equation is produced as follows:

$$a = 0.184 - 0.273X1 + 0.227X2 + 0.215X3 + 0.200X4 + 0.396X5 + 0.291X6$$

The above equation can be interpreted as follows:

a. $a = 0.184$ This means that if the variables age, education, length of business, number of family dependents, number of siwalan trees and cosmopolitan level are zero (0), then the variable business income of siwalan sugar will be worth 0.184 units.

b. $X1 = -0.273$ This means that if age increases by one unit and the other variable is constant, then the variable sugar business income decreases by 0.273 units.

c. $X2 = 0.227$ This means that if education increases by one unit and the other variable is constant, then the siwalan sugar business income variable increases by 0.227 units.

d. $X3 = 0.215$ This means that if the length of business increases by one unit and the other variable is constant, then the variable business income of siwalan sugar increases by 0.215 units.

e. $X4 = 0.200$ This means that if the number of dependents of the family increases by one unit and the other variable is constant, then the variable business income of siwalan sugar increases by 0.200 units.

f. $X5 = 0.396$ This means that if the number of siwalan trees increases by one unit and the other variable is constant, then the variable siwalan sugar business income increases by 0.396 units.

g. $X6 = 0.291$ This means that if the cosmopolitan level increases by one unit and the other variable is constant, then the siwalan sugar business income variable increases by 0.291 units.

3.1.5. Test the Hypothesis

1. F Test

The F test was conducted to determine whether the independent variables (x) simultaneously affect the dependent variable (y), from the results of the F test in table (4.7) showed that the Fcalculate value was 23.984 and the Ftable value was 2.246, the results showed that the Fcalculate value > the Ftable value. While the p-value (sig) 0.000 which means less than alpha = 0.05, thus H_0 is rejected, meaning that the variables age, education, length of business, number of family dependents, number of siwalan trees and cosmopolitan level simultaneously have a

significant positive effect on siwalan sugar business income.

2. T Test

The t test was conducted to determine the effect of the independent variable on the non-free variable partially with a significant level used in this study of 0.05 and the results can be seen in the table below.

Table 3.3

Hasil Pengujian Hipotesis				
Variabel Independen	t-Hitung	t-Tabel	Uji Hipotesis	Ket
Umur	-2.238	1.998	t Hit > t Tabel	H1 diterima
Pendidikan	2.098	1.998	t Hit > t Tabel	H1 diterima
Lama usaha	2.170	1.998	t Hit > t Tabel	H1 diterima
J.T Keluarga	2.076	1.998	t Hit > t Tabel	H1 diterima
Jumlah Pohon	3.599	1.998	t Hit > t Tabel	H1 diterima
Tingkat Kosemopolitan	2.854	1.998	t Hit > t Tabel	H1 diterima

Sumber : Data primer yang diolah 2023

a. Variable Hypothesis Testing x1 (Age)

From table 4.8, a calculated value of -2.238 and a ttable value of -1.998 are obtained. While the significance value is 0.029, the result shows that the significance value is less than the significance level value ($\alpha = 0.05$). Thus, it can accept H1 and reject H0, which means that age has a significant effect on the income of the siwalan sugar business.

Then the results of the multiple regression equation show that the effect of age on siwalan sugar business income is negative, that is, if age increases by one unit and other variables are constant, then the siwalan sugar business income variable decreases by 0.273 units, then the higher a person's age level, the lower the siwalan sugar business income produced, because when a person's age increases, the person further reduces the production of siwalan sugar. Due to the age factor that is easily tired so that with reduced production, income will also decrease.

This is in line with research conducted by Made Ayu Laksmitha Dewi [5] that age variables have a negative and significant effect on income. This shows that the older the female workers are, the lower the level of productivity produced by workers will have an impact on decreasing the income of the female workers themselves. Obviously with a productive age, someone can produce more siwalan sugar so that income also increases, otherwise when someone has an advanced and unproductive age, income will decrease.

b. Hypothesis Testing Variable X2 (Education)

From table 3.3 above, we get a calculated value of 2.098 and a table value of 1.998, the results show that the calculated value > the ttable value. While the significance value is 0.040, the results show that the significance value is less than the significance level value ($\alpha = 0.05$). Thus, reject H0 and accept H1, which means that education has

a significant effect on the income of the siwalan sugar business.

Based on the results of the multiple regression equation carried out, it shows that education has a positive effect on sugar siwalan business income, namely if education increases by one unit and other variables are constant, then the variable sugar siwalan business income increases by 0.227 units, then the higher a person's education level the higher the siwalan sugar business income, because when someone has a higher level of education will always find ideas to do more innovative production so that it can increase revenue.

According to Made Ayu Lakshmita Dewi [5] through education, it is hoped that it can change the mindset of the workforce into a professional workforce so that its utilization can be optimal in the development process. High-quality human resources are needed to support the ongoing development. Then this is in line with Kurniawan's opinion [6] that education basically has a considerable role in the process of improving income levels. It can be concluded that the higher a person's level of education, the more innovative it will be in producing siwalan sugar so that the income of the siwalan sugar business will increase with the existing siwalan sugar innovation.

c. Hypothesis testing variable X3 (Length of Effort)

From table 3.3 above, a calculated value of 2.170 and a ttable value of 1.998 were obtained, the results showed that the calculated value > the table value. While the significance value is 0.034, the results show that the significance value is less than the significance level value ($\alpha = 0.05$). Thus, reject H0 and accept H1, which means that the length of business has a positive and significant effect on the business income of siwalan sugar.

Then the results of the multiple regression equation show that the length of business has a positive effect on the business income of siwalan sugar, namely if the length of business increases by one unit and other variables are constant, then the variable of siwalan sugar business income increases by 0.215 units, it is concluded that the longer someone runs the siwalan sugar business, the higher the income of the siwalan sugar business produced. Because with the experience or length of business in the siwalan sugar business, someone will better understand how to produce siwalan sugar more innovatively and generate higher income.

According to Nency Yella Tragindi [7] in her research that the length of business (X3) based on research has a significant influence because the length of business undertaken by small furniture industry entrepreneurs in Bondowoso District, Bondowoso Regency is quite long in the process of producing furniture products so that based on the results of research the length of business has an



effect on income. With the length of business that has been run, it will make these business actors more experienced in managing their business, in this case it is a siwalan sugar business, so that with long enough experience it will make business actors know what are the shortcomings and how to innovate their business so that it will make income increase.

d. Hypothesis testing variable X4 (Number of Family Dependents)

From table 3.3 above, a calculated value of 2.076 and a table value of 1.998 were obtained, the results showed that the calculated value > the table value. While the significance value is 0.042, the results show that the significance value is dama with a significance level value ($\alpha = 0.05$). Thus, reject H_0 and accept H_1 , which means that the number of family dependents has a significant effect on the income of the siwalan sugar business.

3.2. The most dominant socioeconomic factors affecting the income of the Siwalan sugar business

To find out which variables have the most dominant influence on the business income of siwalan sugar, it can be seen in the results of multiple regression analysis by looking at the value of the coefficient of each independent variable, namely age, education, length of business, number of family dependents, number of trees and cosmopolitan level. Or it could be by looking at the significant value of each variable.

Where the variable number of trees in tabl 3.2 has a regression coefficient of 0.396 greater than other variables and a significant value of 0.001 smaller than the significant value of other variables. So that the second formulation of the problem states that the variable Number of trees is the most dominant variable that affects the income of the siwalan sugar business.

The variable number of trees is the most dominant variable because the amount of sap produced depends on the number of trees managed so that the results of sugar produced will also increase and its effect on the income of the siwalan sugar business, the more raw materials owned, namely sap water, the more sugar will be produced by each siwalan sugar business actor.

This is in line with research conducted by novia fitri yanti saragi [8] with the results of research on the number of variable savory trees (x_3) which is the most dominant variable with a significant value of 0.00, and a coefficient b value of 12537.69. The factor of the number of trees that are savored affects the amount of savory sap produced each day. According to research, one palm tree trunk can produce 20-25 liters of sap, the more the number of trees that are tasted, the more sap will be produced. This also affects the amount of palm sugar production produced. The higher the palm sap

produced every day, the higher the palm sugar production received by farmers every day.

4. CONCLUSION

The results of research on socioeconomic factors that affect the income of the siwalan sugar business in Jadung Village, Dungkek District, Sumenep Regency can be concluded as follows:

1. Socioeconomic factors that affect the income of the siwalan sugar business are age, education, length of business, family dependents, number of trees and cosmopolitan level, either jointly or partially.
2. The most dominant factor that affects the income of siwalan sugar business in Jadung Village, Dungkek District, Sumenep Regency is the Number of trees Factor, this can be seen from the magnitude of the variable beta coefficient of the number of trees of 0.396 greater than the others.

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