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FACTORS AFFECTING NET SURPLUS OF SUGARCANE COOPERATIVES IN EAST JAVA POVINCE

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Abstrak: *Salah satu hal utama yang membedakan koperasi dengan lembaga non-koperasi adalah adanya Sisa Hasil Usaha (SHU) yang mempunyai konsep yang berbeda dengan keuntungan, namun mempengaruhi keberhasilan koperasi dan menjadi daya tarik bagi anggotanya. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang mempengaruhi SHU yang diperoleh koperasi tebu di Provinsi Jawa Timur. Analisis regresi digunakan untuk menganalisis data 29 koperasi tebu primer yang bernaung di bawah KUB Rosan Kencana sebagai koperasi sekundernya. Pada umumnya SHU yang diperoleh koperasi tebu di Provinsi Jawa Timur tergolong rendah, yaitu kurang dari Rp100.000.000 (tahun dasar 2008). Faktor-faktor yang secara signifikan mempengaruhi besarnya SHU koperasi tebu adalah kategori koperasi, jumlah anggota dan ekuitas yang dimiliki koperasi tebu tersebut. Untuk lebih meningkatkan kinerja koperasi, sekaligus jumlah SHU yang diperoleh koperasi, beberapa saran kebijakan yang perlu ditempuh antara lain adalah penguatan/pembinaan manajemen koperasi, penguatan peran anggota dalam kontribusi ekuitas koperasi dan peningkatan anggota yang berpartisipasi aktif dalam kegiatan koperasi.*

Kata kunci: *koperasi, tebu, sisa hasil usaha, Jawa Timur*

INTRODUCTION

Among hundreds of primary cooperatives in East Java that are engaged in sugarcane business, there are 46 primary cooperatives engaged in sugarcane business that are members of KUB Rosan Kencana, a secondary sugarcane cooperative. These cooperatives were spread over 24 regencies/cities, with different scales, activities, and performance levels.

KUB Rosan Kencana was established in 2003 with its board of directors consist of delegates from its primary cooperative-members and the Office of Cooperative and Small and Medium Enterprises and Office of Estate Crops of East Java Province as the board of supervisors. The main objective of the establishment of KUB Rosan Kencana is to serve as a bound institution for all primary cooperatives engaged in sugarcane agribusiness that received *Penguatan Modal Usaha Kelompok* (PMUK) (Group Business Capital Strengthening) fund sourced from the government and revolving fund in the form of *Rawat Ratoon* loan.

According to their categories, the primary cooperatives are divided into two groups/categories. The first group is *Koperasi Unit Desa* (KUD) or Village Unit Cooperative, a multipurpose cooperative in which sugarcane business becomes one of the business units it engaged in. The degree of importance of sugarcane business unit to KUD can vary from one KUD to another. However, usually sugarcane becomes their core business. The second group is *Koperasi Petani Tebu Rakyat* (KPTR) or People Sugarcane Farmer Cooperative which focuses on sugarcane business as the only/main business they engaged in.

Business organizations or enterprises, these cooperatives should be able to provide economic advantages for its members (Roepke, 1985; Sexton and Iskow, 1988). To be attractive, these cooperatives should be able to produce greater economic advantages to their members than non-cooperative institutions. Therefore, financial performance of a

cooperative is the most important indicator in determining the status of the cooperative. In this study, the financial performance of cooperatives was measured in terms of the net surplus. The profit they generate, which refers to net surplus in this study, is defined as the excess payment from a member to its cooperative for the services the cooperative renders to him. The cooperative distributes any accrued surplus to members according to their participation in the activities of the cooperative. A member who participates more will get more out of the eventual surplus, regardless of what he has invested in the share capital of the cooperative.

The net surplus that a cooperative generates is assumed to reflect the financial performance of the cooperative. A cooperative with good financial performance is able to generate high net surplus. However, until recently, there is no study that comprehensively assesses the financial performance of sugarcane cooperatives in East Java Province and its influencing factors. Therefore, this study aimed to analyze the net surplus and factors affecting net surplus of sugarcane cooperatives in East Java Province.

RESEARCH METHODE

Method of Sampling

Location of the study was determined purposively. East Java Province was selected as the location of this study because it is the largest sugarcane producing center in Indonesia. In 2011, it is estimated that East Java Province contributed around 44.2% of sugarcane area and 41.4% of sugarcane production (Directorate General of Estate Crops, 2012). Around 85.5% of total sugarcane area was cultivated by farmers, 14.4% by government estate, and the remaining 0.1% was cultivated by private estate. Aside from that, primary cooperatives that are engaged in sugarcane agribusiness grow well and spread over the sugarcane producing centers in East Java Province.

The study made use of primary data, which were gathered from managers or officers of the cooperatives through personal interviews using interview schedules. Among hundreds of primary cooperatives that are engaged in sugarcane agribusiness in East Java Province, this study selected the cooperatives under KUB Rosan Kencana, the biggest secondary cooperative specifically engaged in sugarcane agribusiness, as samples. Out of 46 primary sugarcane cooperatives that are members of KUB Rosan Kencana, the data from 31 primary sugarcane cooperatives from 2008-2011 were gathered. However, data from two primary sugarcane cooperatives were dropped; one cooperative gave erroneous data while the other had very incomplete data. As a result, data from 29 primary sugarcane cooperatives during 2008-2011 were employed in this analysis. All the financial data were deflated to 2008 constant Indonesian rupiahs using the Consumer Price Index of East Java.

Method of Analysis

Net income (or net surplus) was employed as a proxy of the financial performance of the sugarcane cooperatives. A cooperative's net income was calculated by taking revenues and adjusting for the cost of doing business, depreciation, interest, and other expenses.

Net Surplus = Total Revenues – Total Expenses

In general, the higher the net surplus, the better, with some exceptions, is the performance of the cooperatives.

Regression analysis involving a net surplus model was used to determine the factors affecting the financial performance of sugarcane cooperatives. A panel data estimator was used to consider the relationship between net surplus and some factors potentially affecting net surplus generated by sugarcane cooperatives. In this study, net surplus was considered as a function of category, membership size, equity, total assets, and the number of income-generating activities of the cooperatives. The regression model was fitted as follows:

$$NS = a_o + a_1 CAT + a_2 MEM + a_3 EQUI + a_4 ASST + a_5 ACT + E_{NS}$$

where: NS = Net surplus in million Rupiahs
CAT = Category dummy (1 = KUDs; 0 = Otherwise)

MEM = Membership size in persons
EQUI = Equity in million Rupiahs
ASST = Total assets of cooperatives in million Rupiahs
ACT = The number of income-generating activities
a_0 = Intercept or scale of the regression function
a_j (j =1, 2,...5) = Slope parameters of the regression function
e_{NS} = Error term

CAT is a binary variable representing category of the sugarcane cooperative, whether it is KUD or KPTR. KUD is a cooperative established by the government's initiative. On the other hand, KPTR is a cooperative established based more on sugarcane farmers' needs. Since Bulog reformation and Inpres No. 9/1975 were revoked in 1998, KUDs have lost many of their privileges from the government that made the majority of KUDs collapsed, which encouraged the establishment of KPTRs. It is expected that KUDs have lower net surplus as compared to KPTRs (the sign is expected to be negative).

MEM represents membership size of the cooperatives. Larger membership size is associated with more services provided by the cooperatives which lead to more net surplus generated by the cooperatives. The increase in net surplus is not only caused by the increase in volume of business, but also by reduction in production cost, assuming economies of scale exist in the cooperatives. Therefore, the sign is expected to be positive.

EQUI represents equity of the cooperatives. Higher equity would increase net surplus generated by the cooperative in two ways. Firstly, cooperative with higher equity has the capacity to provide more services for its members, which leads to higher net surplus. Secondly, the cooperative becomes less dependent on liabilities. Fewer liabilities would cause the cooperative to spend less on interest expenses which could reduce net surplus generated by the cooperatives. Therefore, it is expected that the sign of this variable is positive.

ASST represents total assets of the cooperatives. Cooperatives with larger assets have more capacity to provide services for its members, and so could generate higher net surplus. Therefore, the sign is expected to be positive.

ACT represents the number of income-generating activities of the cooperatives. Cooperatives with more income-generating activities are associated with more services provided by the cooperatives, and hence, more net surplus generated by the cooperatives. It is expected that the number of income-generating activities have positive relationship with net surplus.

A fixed effects model could not be estimated for a specification that includes individual-specific (time-invariant) variables such as category (CAT) because technically, time-invariant characteristics of the individuals are perfectly collinear with the entity dummies. If fixed effects model was used, these variables would be absorbed by the intercept. Consequently, the Hausman test to compare the appropriateness of fixed versus random effects for parameter estimation was not employed. Then, the Breusch-Pagan Lagrange multiplier (LM) test was used to decide between a random effects regression and a simple OLS regression. The result of the test showed that there was significant difference across units (i.e., there was panel effect). Therefore, the random effects model was used as the best alternative for estimating the parameters of equation. Random effects assume that the entity's error term is not correlated with the predictors which allow for time-invariant variables as explanatory variables. The likelihood-ratio (LR) test procedure (Wiggins and Poi, 2003) was done to test heterogeneity and a test for autocorrelation provided by Drukker (2003) was used. The results of these tests revealed the evidence of heteroskedasticity, but not autocorrelation, in the model. Therefore, White heteroskedastic consistent standard errors ("robust" standard errors) were used to correct the problem of heteroskedasticity.

RESULTS AND DISCUSSION

Net Surplus Performance of Sugarcane Cooperatives in East Java

Profitability measures the success of a cooperative in earning a net return on its operation and show a cooperative's overall efficiency and performance. Although their

Table 1. Actual Average Value of Net Surplus of Sugarcane Cooperative-Respondents, East Java Province, 2008-2011

ITEM	ACTUAL AVERAGE VALUE				
	2008	2009	2010	2011	Average[a]
Net surplus (IDR millions)					
<0	-	-	-128.31	-60.56	-1.19
>0 - <100	56.22	59.38	53.04	58.11	64.81
100 - < 200	114.66	122.78	123.28	136.46	118.9
≥ 200	466.86	745.37	469.18	510.83	525.83

[a] During the 2008-2011 period
Source: Primary data, 2012

Table 2. Percentage of Sugarcane Cooperative-Respondents by Net Surplus Classification, East Java Province, 2008-2011

ITEM	PERCENTAGE OF COOPERATIVES				
	2008	2009	2010	2011	Average[a]
Net surplus (IDR millions)					
<0	0.00	0.00	3.45	3.45	3.45
>0 - <100	82.76	65.52	62.07	62.07	72.41
100 - < 200	10.34	27.59	27.59	27.59	17.24
≥200	6.90	6.90	6.90	6.90	6.90

[a] During the 2008-2011 period
Source: Primary data, 2012

definition of profitable might differ from an Investor-Own Firms', cooperatives must operate profitably. Cooperatives are generally not profit-motivated, but are more concerned towards serving member-owners (Chesnick, 2000). In order to serve their members well they could charge lower price for the inputs and other services they provide and give higher price for outputs. As a result, net surplus generated by the cooperatives might be relatively low. However, since profit is an important objective of a cooperative, poor performance of cooperative indicates a basic failure that, if not corrected, would probably result in the cooperative's bankruptcy (Chesnick, 2000).

As shown in *Table 1* and 2 there was one cooperative that incurred loss in 2010 and 2011, whereas all other cooperative-respondents had positive net surplus. Most of the cooperative-respondents fell under the net surplus bracket of less than IDR100 million, amounting to approximately 72% of total cooperative-respondents.

Meanwhile, the remaining 24% of the cooperative-respondents were able to generate net surplus of more than IDR100 and 6% of them were able to generate net surplus more than 200 million. The decrease in percentage of cooperative-respondents which fell under the net surplus bracket of less than IDR100 million while the increase in percentage of cooperative-respondents which fell under the net surplus bracket of IDR100-IDR200 million during the period 2008-2011 indicate that, in general, there was an increase in the net surplus generated by the cooperative-respondents, which was a good sign of cooperatives' development.

Factors Affecting Net Surplus of Sugarcane Cooperatives in East Java

Factors affecting the net surplus of sugarcane cooperative-respondents were determined by regression analysis using net surplus (NS) as dependent variable. The estimated coefficients and related statistics are presented in Appendix 1 and summarized in *Table 3*.

Table 4. Parameter Estimates for Factors Affecting Net Surplus of Sugarcane Cooperative-Respondents, East Java, 2008-2011

Variable	Coefficient	Std. Error
Dependent variable		
Net surplus (NS)		
Independent variables		
Intercept	-24.5682^{ns}	32.976
Category (CAT)	-97.3035***	18.029
Membership size (MEM)	0.0189***	0.006
Equity (EQUI)	0.1153***	0.015
Total assets (ASST)	0.0001^{ns}	0.001
No. of income-generating activities (ACT)	7.9414^{ns}	6.339
Sample size (n)	116	
Overall R^2	0.8095	
Wald chi2(4)	288.38***	

***, **, and *Significant at 1%, 5%, 10% probability levels, respectively
^{ns} Not significant at 10% probability level

The value of the overall coefficient of determination (overall R^2) was 0.8095 which indicates that the independent variables in the model consisting of category (CAT), membership size (MEM), equity (EQUI), total assets (ASST), and the number of income-generating activities (ACT) were good enough to explain variations of the net surplus generated by the sugarcane cooperative-respondents in East Java. Approximately 80.95% of the variations in net surplus were explained by independent variables while the rest of variations (19.05%) were explained by variables that were excluded from the model. The model was also found significant at 1% probability level. This means that as a whole, the data fitted in the model strongly influenced net surplus generated by the sugarcane cooperatives.

The coefficients of the independent variables were significant at 1% probability level except for total assets and the number of income-generating activities. This means that the net surplus generated by cooperatives was significantly affected by category, membership size, and equity of the cooperatives. However, the results suggest that net surplus generated by cooperatives was invariant to total assets and the number of income-generating activities.

The result that assets have no statistical relationship with profitability is similar with the result of previous studies done by Boyd et al. (2007) and McKee (2008) on farm supply and grain marketing cooperatives in 36 states in the US and North Dakota state, respectively. Meanwhile, the non-significant coefficient of the number of income-generating activities suggests that the amount of net surplus generated by the sugarcane cooperative-respondents was not only affected by the number but also by the size of the income-generating activities.

Data indicate that KUDs in general had less net surplus than KPTRs, as shown by the significant negative value of the regression coefficient of category. The coefficient value for category (-97.3035) indicates that controlling the effects of membership size, equity, assets, and the number of income-generating activities, on the average, KUDs had IDR97.3035 million less net surplus than KPTR, across the study period and between cooperatives.

Aside from some KUDs that performed well, majority of KUD-respondents had very low net surplus as compared to the majority of KPTRs. This result suggests that cooperatives that are organized by the farmers performed better in terms of net surplus than cooperatives formed by the government. This result is similar with the finding of the study by Panggabean (2001) that dairy cooperatives in

Bandung (West Java) and Malang (East Java) had better performance than KUDs.

Although significant, the low values of the coefficients of membership size and equity indicate that both membership size and equity had little effects on net surplus. The positive sign of the coefficients indicates that membership size and equity had positive effect on net surplus. The coefficient of membership size 0.0128 represents the average effects of membership size over net surplus when membership size changes across time and between cooperatives by one unit (person). Specifically, if membership size changes across time and between cooperative by one person, the net surplus generated by cooperative will increase by IDR0.0189 million. Likewise, the coefficient of equity 0.1153 represents the average effects of equity on net surplus when equity changes across time and between cooperatives by one unit. Equity could reduce the cooperatives' dependency on liabilities resulting in less interest expense that the cooperatives should pay.

CONCLUSION

Based on the above results, it can be concluded that majority of the sugarcane cooperatives in East Java, both KPTRs and KUDs, had relatively low net surplus. However, the existence of some sugarcane cooperatives that had relatively high net surplus indicates a good sign in sugarcane cooperative development in East Java. The net surplus was affected by category, membership size, and equity of the cooperatives. The sugarcane cooperatives that are initiated by the sugarcane farmers, have larger membership size, and have larger equity performed generated higher net surplus than those that are initiated by the government, have smaller membership size, and have smaller equity.Based on the results of the study, the following are some policy recommendations to further help and improve the next implementation strategies of sugarcane cooperatives in East Java, Indonesia: (1) Cooperative management improvement. Majority of the sugarcane-respondents had low net surplus. To address these problems, improvement in cooperative management should be done to increase cooperative efficiency which leads better performance as a whole. Therefore, a periodic and continuous training and guidance should be carried out for the cooperatives, with regard to both administrative management and financial management. The training and guidance can be facilitated by the Office of Cooperative and Small and Medium Enterprises at the regency, provincial, or national level. It can also be facilitated by KUB Rosan Kencana as secondary cooperative. The cooperative should also be encouraged to have an external auditor to assure that the cooperative has good financial management. (2) Strengthening the members' capital share. The fact that the sugarcane cooperatives were highly dependent on debt to finance their business has made the cooperatives not financially solvent. Moreover, the interest expenses that should be paid by the cooperatives could reduce the net surplus generated by the cooperatives. Therefore, the cooperatives should be encouraged to strengthen their own resources (equity) through increasing members' capital share/contribution to equity. Aside from reducing the dependence on debt and improving their financial performance, increasing the member's capital share will provide the farmer-members a sense of ownership to the cooperatives. (3) Membership size growth encouragement. The cooperatives should be encouraged to increase their active members. Considering that the membership participation and governance are clear indicators of a cooperative's long-term business success, as well as how it meets social objectives (Mellor, 2009), active membership participation should be priority consideration for all cooperatives.

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APPENDIX

Appendix 1. Regression analysis of factors affecting net surplus of sugarcane cooperatives in East Java, 2008-2011

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Random-effects GLS regression                   Number of obs     =       116
Group variable: coop                            Number of groups  =        29

R-sq:  within  = 0.0566                         Obs per group: min =         4
       between = 0.8948                                        avg =       4.0
       overall = 0.8095                                        max =         4

                                                Wald chi2(5)      =    288.38
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

                          (Std. Err. adjusted for 29 clusters in coop)
------------------------------------------------------------------------------
             |               Robust
         nss |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cat |  -97.30349   18.02931    -5.40   0.000    -132.6403   -61.96669
         mem |   .0188838   .0064355     2.93   0.003     .0062704    .0314972
        equi |   .1153364   .0154339     7.47   0.000     .0850866    .1455862
        asst |   .0001333   .0007465     0.18   0.858    -.0013297    .0015964
         act |   7.941408   6.339282     1.25   0.210    -4.483356    20.36617
       _cons |  -24.56819   32.97603    -0.75   0.456    -89.20002    40.06363
-------------+----------------------------------------------------------------
     sigma_u |  39.175836
     sigma_e |  49.709691
         rho |  .38313104   (fraction of variance due to u_i)
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