



Effect of socio-economic characteristics on grape wine productivity

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ABSTRACT

Maharashtra has 58 grape winery units of which 32 grape winery units were selected for knowing the effect of socio-economic characteristics on grape wine productivity. Data pertained for the year 2009-10. Arithmetic means, standard deviation, coefficient of variation, correlation and regression analyses were used to draw the inferences. The results revealed that coefficient of variation with respect to interest rate, visit to foreign countries, recruited technical persons, life of firm showed more stability in grape wine production. Correlation coefficient of education level, per day crushing capacity, crushing days showed positive relationship with grape wine productivity. Regression coefficient of education level, experience, per day crushing capacity, training in wine technology and recruited technical persons showed positive effect on grape wine productivity. Thus, there was 89 per cent of variation in wine productivity due to all socio-economic characteristics together.

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INTRODUCTION

There are 62 grape winery units in India. Maharashtra is leading state in grape wine production. The state has about 58 grape winery units. Farmers are producing grape for wine production. Due to availability of raw material as grape for winery units, some capitalists are establishing new winery units in the study area. Grape wine production is capital intensive business. Similarly, processor must have technical knowledge and experience. Thus, in wine production one is technical side while other is socio-economic side. In technical aspect, raw material, chemicals, labour and capital are playing important role in grape wine production. In a same way, socio-economic factor can play important role in grape wine production. Similarly, the persons are entering in grape wine production in Maharashtra. Generally, they are also educated and capitalists. Some of them may be from grape growers. Some of them are having good experience and knowledge of grape wine production. They are from vary social status. By considering in view the above socio-economic aspects present study has been undertaken Pritchard (1999) revealed that wine

process were highly educated and 89 per cent of grape winery owners were good capitalists with awareness about marketing of grape wine to get more profit.

METHODOLOGY

Multistage sampling design was adopted for selection of districts and grape winery owners. At the first stage, Pune, Nasik and Sangli districts were selected purposely on the basis of availability of grape winery units. In second stage, list of winery owners were obtained from Pune, Nasik and Sangli districts. Then, eight winery units from Pune, sixteen from Nasik and eight winery units from Sangli district were randomly selected for the study. Cross sectional data were collected from selected winery owners by personal interview method with the help of pretested schedule. The data pertained to the year 2009-2010.

The effect of socio-economic characteristics of grape wine producer on productivity of wine was achieved by linear functional analysis. Fitted linear function as follows :

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}X_{10} + b_{11}X_{11}$$

Key words :

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$$+b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14},$$

where, Y = Wine productivity per day in liter a = Intercept of production function, b_i = Partial regression coefficients of the respective resource variable ($i = 1,2,3,\dots,14$), X_1 = Age in year, X_2 = Education level in five quantum score, X_3 = Family size in number, X_4 = Social status in five quantum score, X_5 = Experience in year, X_6 = Visit to foreign countries in number, X_7 = Area under firm in ha, X_8 = Crushing days in number, X_9 = Crushing capacity in quintal, X_{10} = Economic life of firm in year, X_{11} = Amount of loan Rs. in lakh, X_{12} = Interest rate in per cent, X_{13} = Training in wine technology in number, X_{14} = recruited technical persons in number.

RESULTS AND DISCUSSION

The findings the present study as well as relevant discussions have been summarized under following heads:

Socio- economic characteristics of grape wine producer:

Socio-economic characteristics of grape wine producers were estimated and presented in Table 1. The results revealed that age of wine producer was 46.34 years along with education standard more than undergraduate (2.06 scores). Coefficient of variation with respect to age and education standard was 23.17 and 50.75 per cent, respectively. It implied that young and educated person were engaged in grape wine production business. It was observed that family size was 9.06 in number and its coefficient of variation 30.05 per cent. It was clear that the grape wine producer had large family size, which might be due to joint family. Social status of

the wine producer was 3.81 scores in the form of five quantum with standard deviation of 0.933 and coefficient of variation was 23.50 per cent. It implied that the wine producer might be from higher social status. Experience of wine producer was 7.41 years in the business with standard deviation of 2.81 years and coefficient of variation was 37.90 per cent. It inferred that experienced person were engaged in the wine production business. It was observed that wine producer visited to foreign countries as 0.44 numbers. In order to establish wine production firm, the requirement of area was 0.18 hectares with standard deviation of 0.061 hectare and coefficient of variation was 29.83 per cent. It inferred that most of the firm possessed that area of 0.18 hectares. It was observed that grape crushing period was 35.63 days while grape crushing capacity per day was 7.42 quintals. Life of firm was fifteen years in study area with 3.806 standard deviation and 20.06 per cent of coefficient of variation. In order to establish the firm, the producer obtained amount of loan of Rs. 107.12 lakh with interest rate of 11.78 per cent. The standard deviation of interest rate was 1.53 per cent. It implied that grape producing firm might be capital intensive. It was clear that the owner completed 0.56 number of training in wine technology. Similarly, the owner recruited technical persons as 5.78 ,in numbers. Thus, wine production required trained and technical persons. The results are in conformity with those obtained by Boen (2008) regarding wine producer work with post graduate diploma in wine technology, Geraghty and Torres (2009) showed that grape wine producers were highly educated and Pritchard (1999) showed wine producers were highly educated and good capitalists.

Table 1 : Socio-economic characteristics of grape wine producer

Sr. No.	Particulars	Unit	Arithmetic mean	S.D.	C.V. %
1.	Age	Year	46.34	10.739	23.17
2.	Educational level (three quantum)	Score	2.06	1.319	50.07
3.	Family size	Number	9.06	2.903	30.06
4.	Social status (five quantum)	Score	3.81	0.933	23.50
5.	Experience	Year	7.41	2.810	37.90
6.	Visit to foreign countries	Number	0.44	0.064	14.61
7.	Area under firm	ha	0.18	0.061	29.83
8.	Grape crushing period	Days	35.63	27.986	78.55
9.	Per day crushing capacity	q.	7.42	200.910	27.04
10.	Life of firm	Year	17.00	3.806	20.06
11.	Amount of loan	Rs. In lakh	107.12	43.990	41.06
12.	Interest rate	%	11.78	1.529	12.51
13.	Training in wine technology	Number	0.56	0.504	89.60
14.	Recruited technical persons	Number	5.78	1.157	20.00

Table 2 : Correlation and regression coefficients of socio-economic characteristics with grape wine productivity per day

Sr. No.	Particulars	Correlation coefficient	Regression coefficient (bi)	Standard error	't' value
1.	Age	-0.096	-0.076	0.260	-0.291
2.	Education level	0.409**	11.020	4.110	2.680**
3.	Family size	-0.097	28.287	34.051	0.830
4.	Social status	-0.165	-22.513	17.753	-1.273
5.	Experience	0.108	3.609	1.785	2.021*
6.	Visit to foreign countries	-0.239	85.785	74.835	0.490
7.	Area under firm	0.085	183.410	146.438	0.125
8.	Per day crushing capacity	0.804**	3.262	1.217	2.680*
9.	Grape crushing period	0.791**	14.327	15.620	-0.917
10.	Economic life of firm	-0.141	1.458	2.337	0.062
11.	Amount of loan	0.298	0.003	0.009	0.371
12.	Interest rate	0.302	-58.892	94.350	-0.624
13.	Training in wine technology	0.248	11.448	202.935	0.564
14.	Technical recruited persons	0.185	38.625	79.418	0.486

Intercept (a) ----- = 829.768

R² ----- = 0.890

F-value = ----- = 7.618**

N ----- = 32.00

* and ** indicate significant of values at P=0.05 and 0.01, respectively

Correlation analysis:

Correlation coefficients with grape wine productivity were estimated and are presented in Table 2. The results revealed that correlation coefficients of education level, grape crushing capacity and grape crushing period were 0.409, 0.804 and 0.791, respectively. It was clear that these coefficients were positive and highly significant. It inferred that as education level of wine producer increased, grape wine productivity could also increase. Similarly, crushing capacity and crushing days increased with increase in grape wine productivity. Other socio-economic characteristics were having non-significant relationship with grape wine productivity per day.

Regression analysis:

It was also evident from Table 2 that coefficient of multiple determination (R²) was 0.89. It was clear that there was 89 per cent effect of all socio-economic characteristics on grape wine productivity. In regard to individual socio-economic characteristics, education level showed the regression coefficient as 11.020 which was highly significant. It implied that due to addition of one score of education over mean, it would lead to increase in wine production per day by 11.020 litres. Similarly, the regression coefficient of grape crushing capacity was 3.262 that was also highly significant. Where there was addition of one quintal crushing capacity, it would lead to increase in grape wine productivity per day by 3.262 litres.

Experience of wine producer indicated regression coefficient of 3.60 which was significant. It implied that due to addition of one year experience of the producer, it would lead to increase in grape wine productivity by 3.60 litres. Training of the owner in wine technology showed the regression coefficient of 11.448 which was positively significant. It inferred that one added training could cause to increase 11.448 litres of grape wine per day. Hence, training was an essential activity of owner. It was clear that recruited technical person showed the regression coefficient of 38.625 which was also significant. It was obvious that due to addition of technical recruited person, there would be increase in grape wine productivity by 38.625 litres per day. On contrary, age, social status and interest rate showed the regression coefficients as -0.076, -22.513 and -58.892, respectively. It indicated that there was no scope to increase these variables because they were negatively non-significant. Remaining socio-economic characteristics showed positively non-significant effect with respect to grape wine productivity.

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