



# A Study of Consumer Satisfaction in the Fruit Wine Market in Weifang Based on SEM Equations

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**Abstract.** In recent years, people's interest in healthy drinking has gradually increased and the market for low-proof fruit wines is growing rapidly. As a new and fashionable product, the market for fruit wine has much room for development. This study takes the Weifang fruit wine market as an example and investigates the current situation of the fruit wine consumption market and consumer satisfaction to find out how satisfied consumers are with the current fruit wine market and what factors are the main influencing factors of consumer satisfaction. This paper explores satisfaction based on models such as SEM structural equations and SCBS, and finds that the degree of influence of each dimension is ranked in order of total effect: organisational marketing > cultural perception > product experience > functional evaluation.

**Keywords:** Fruit wine market · consumer satisfaction · SEM structure · SCBS model

## 1 Introduction

With the development of the commodity economy, China's share of low-degree fruit wine in the alcohol market [1] has continued to increase, but affected by the epidemic for three consecutive years, the economic downturn and the consumer slump, coupled with increased competition within the industry and the limits of the industry's own development laws, the fruit wine industry is facing the painful market point of high product homogeneity and an overall low product reorder rate. Therefore, fruit wine brands cannot sit still and take the initiative to find ways to break the game. In order to better study China's low fruit wine industry and understand the market situation in China from a point of view, this study is based on the current situation of the fruit wine market in Weifang City [2]. By exploring consumers' awareness of low fruit wine, consumption, consumption preference, consumption satisfaction and respective influencing factors, it refines the fruit wine consumption needs of different consumer groups and provides suggestions for fruit wine brand development, which can help reduce fruit wine product This will help reduce the homogeneity of fruit wine products, increase consumer repurchase rates and contribute to the overall development of the fruit wine industry.

## 2 Materials and Methods

### 2.1 Data Acquisition

In this study, data was obtained through web data search index analysis [3] and combined with an offline questionnaire survey [4], and the data from both were compared to make the study more rigorous.

### 2.2 SEM Equation

SEM [5] is a statistical method for analysing causal or path relationships between variables based on a covariance matrix [6]. The relationship between the endogenous, exogenous and error variables in the model can be tested to determine the equation of the independent variables on the dependent variable.

$$x = \Lambda E + \Delta \tag{1}$$

E—Exogenous variables associated with the model, X—Exogenous measurement variables of the model.

$$X = \begin{bmatrix} x_1 \\ \vdots \\ x_n \end{bmatrix}, \Lambda = \begin{bmatrix} \lambda_{11} & \cdots & \lambda_{1m} \\ \vdots & \ddots & \vdots \\ \lambda_{n1} & \cdots & \lambda_{nm} \end{bmatrix}, \Xi = \begin{bmatrix} \alpha_1 \\ \vdots \\ \alpha_n \end{bmatrix}, \Delta = \begin{bmatrix} \delta_1 \\ \vdots \\ \delta_n \end{bmatrix} \tag{2}$$

$$Y = MH + E \tag{3}$$

H—Endogenous latent variables of the model, Y—Endogenous measurement variables of the model.

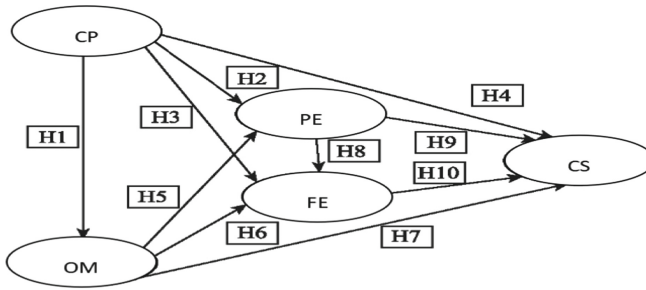
$$Y = \begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix}, M = \begin{bmatrix} \mu_{11} & \cdots & \mu_{1m} \\ \vdots & \ddots & \vdots \\ \mu_{n1} & \cdots & \mu_{nm} \end{bmatrix}, H = \begin{bmatrix} \eta_1 \\ \vdots \\ \eta_n \end{bmatrix}, E = \begin{bmatrix} \varepsilon_1 \\ \vdots \\ \varepsilon_n \end{bmatrix} \tag{4}$$

$$H = BH + \Gamma \Xi + Z \tag{5}$$

$$B = \begin{bmatrix} 1_{11} & \cdots & \beta_{1m} \\ \vdots & \ddots & \vdots \\ \beta_{n1} & \cdots & 1_{nm} \end{bmatrix}, \Gamma = \begin{bmatrix} \gamma_{11} & \cdots & \gamma_{1m} \\ \vdots & \ddots & \vdots \\ \gamma_{n1} & \cdots & \gamma_{nm} \end{bmatrix}, Z = \begin{bmatrix} \delta_1 \\ \vdots \\ \delta_n \end{bmatrix} \tag{6}$$

Λ—Factor loading matrix for the exogenous observed variables of the measurement model, M—Factor loading matrix for endogenous observed variables, B—Path coefficients between endogenous latent variables, Γ—Path coefficients between exogenous and endogenous latent variables, ΔEZ—Error term quantity.

The process of SEM analysis can be summarised as model building and identification, parameter estimation, and model testing and correction. The maximum likelihood method [7] is generally often used to test significance and goodness of fit. Significance



**Fig. 1.** SCSB model diagram

refers to the testing of the significance level of the parameters estimated by the model. Model correction refers to the appropriate deletion of variables or paths in the model and relaxation of restrictions on certain paths in the model to improve the fit of the model according to the model fitting results, so as to obtain a better model by adjusting the magnitude of the change in the correction index and critical ratio.

### 3 Model Building and Solving

#### 3.1 Model Foundations

Low fruit wine consumption satisfaction refers to the relative relationship between consumers' expectations of fruit wine consumption and their actual consumption experience, and is a fundamental condition that drives repeat purchases and hence consumer loyalty. As can be seen from Fig. 1, this study draws on the Swedish model [8] and combines the characteristics of fruit wines by setting cultural perception - CP and organisation and marketing - OM as The main factors influencing consumer expectations, product experience - PE and function evaluation - FE are set as the main factors influencing value perception, and the analysis influences fruit wine consumption The main factors influencing consumption satisfaction - CS and their pathways were analysed.

#### 3.2 Model Assumptions

Consumers' knowledge of the raw materials, processes and efficacy of fruit wines and their development prospects will influence their judgement of the price, brand, quality and taste of the product, and ultimately affect their consumption decisions, consumption experience and satisfaction. If consumers are more knowledgeable about fruit wine culture, the higher the likelihood of making correct judgments and expectations, the lower the probability of expectations deviating from reality, the higher the degree to which the product meets individual needs, and the higher consumer satisfaction. The following hypothesis is formulated accordingly:

H1: Consumers' cultural perceptions of fruit wines have a positive impact on the organisation's marketing.

H2: Consumers' cultural perceptions of fruit wines have a positive impact on their product experience.

H3: The cultural perception of fruit wines has a positive impact on the functional evaluation of fruit wines.

H4: Consumers' perception of the culture of fruit wines has a positive impact on their satisfaction.

A good brand image, exquisite packaging and convenient logistics system will leave a deep impression and a comfortable shopping experience for consumers, improving the reputation of the company and the value of the consumer experience. At the same time, quality is a prerequisite for an enterprise to be at a competitive advantage in the industry and market, and is the first element for survival, virtuous and sustainable development. The organic fusion of tea and fruit with a quality wine body effectively meets consumers' health needs and greatly enhances consumers' evaluation of the efficacy and satisfaction of the product. Accordingly, the following hypothesis is proposed:

H5: Corporate organisational marketing has a positive impact on consumer product experience.

H6: Corporate organisational marketing has a positive impact on consumer product function evaluation.

H7: Business organisation marketing has a positive impact on consumer satisfaction.

H8: Consumer product experience has a positive impact on their functional evaluation.

H9: Consumer product experience has a positive influence on their satisfaction.

H10: Consumers' functional evaluation of the product has a positive influence on their satisfaction.

### 3.3 Model Testing and Fitting

The SEM model was fitted using AMO24.0 software, and the paths whose estimated coefficients did not pass the significance test were removed and then re-fitted and revised, in turn removing the paths  $CP \rightarrow PE$  and  $OM \rightarrow FE$ , i.e. the hypotheses H2 and H6 were not valid.

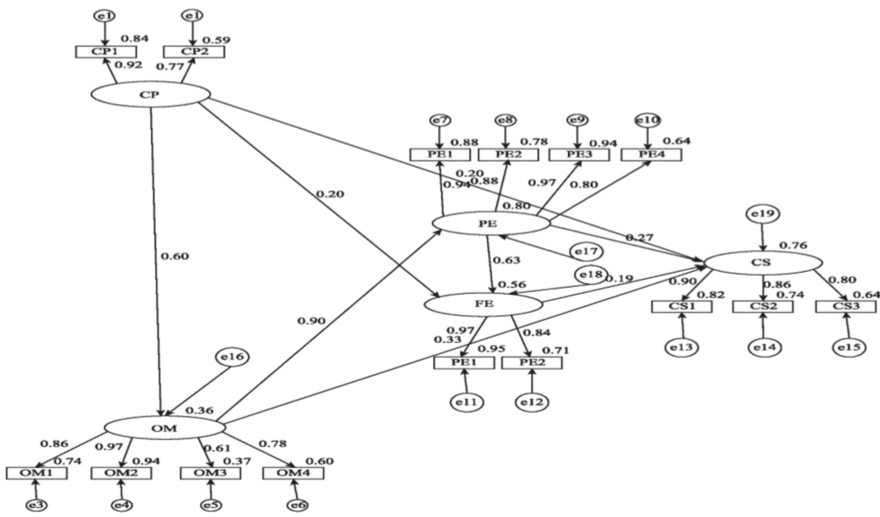
Six commonly used test indicators were selected to judge the goodness of fit of the modified SEM model, specifically: the ratio of cardinality to degrees of freedom (CMIN/DF), root mean squared error of approximation (RMSEA), goodness of fit index (GFI), normative fit index (NFI), comparative fit index (CFI), and parsimony fit index (PGFI), as can be seen from Table 1, the fit values of the selected indicators were The fit values of the selected indices are within the ideal range, indicating that the optimised SEM model fits well.

### 3.4 Results and Analysis

As can be seen from Fig. 2, the optimized path of fruit wine consumption satisfaction influencing factors is more informative. Analysis of the effect of latent variables: the total and direct effects of organisational marketing on satisfaction are the highest. As can be seen from Fig. 2, the total and direct effects of organisational marketing on satisfaction are higher than the other three variables, and the indirect effect is only lower than that of

**Table 1.** Model variables

Fitted indicators	fitted values	evaluation criteria
CMIN/DF	1.916	<3.00
RMSEA	0.067	<0.08
GFI	0.907	>0.90
NFI	0.947	>0.90
CFI	0.974	>0.90
PGFI	0.620	>0.50



**Fig. 2.** Optimisation path map of factors influencing fruit wine consumption satisfaction

cultural perception, indicating that consumers, with less knowledge about fruit wines, pay great attention to elements such as brand image, packaging and price, to which companies should pay more attention when formulating their marketing plans.

### 4 Countermeasures

Improve the quality of the product itself. Consider the diversity of consumer needs and strengthen market segmentation. Explore various marketing methods, strengthen cultural export and enhance consumer participation.

### 5 Conclusion

In this paper, through SEM equation, SCSB model and other methods, we can get the total effect ranking of the degree of influence of the four influencing factor dimensions of satisfaction on consumer satisfaction scores as: organizational marketing > cultural

perception > product experience > functional evaluation. Among the observed variable factor loadings, development prospects, brand image, quality, raw materials, health and fitness, and overall satisfaction can better reflect the latent variables and have a greater impact on consumer satisfaction, which can be used for precision marketing in the wine market and other aspects.

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