

# An Analysis of Some Factors Affecting the Behavior of Vinamilk Fresh Milk in Thai Nguyen City

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**ABSTRACT:** The objective of this study is to identify and clarify some factors affecting the consumption behavior of Vinamilk fresh milk in Thai Nguyen city. The data used in the study were collected from the survey results of 250 customers in Thai Nguyen city and processed with the statistical software SPSS 20.0. The scale is tested using Cronbach's Alpha coefficient, exploratory factor analysis (EFA) model and Binary Logistic regression analysis model. The research results show that the factors affecting the consumption behavior of Vinamilk fresh milk in Thai Nguyen city are "Consumer perception", "Consumer's attitude", "Consumer's experience", "consumers". In which, "Consumer's attitude" is the factor that has the strongest influence on Vinamilk's fresh milk consumption behavior in Thai Nguyen city.

**Keywords:** Consumption behavior, Vinamilk fresh milk, Thai Nguyen, EFA, Binary Logistic

## I. ASK THE PROBLEM

In 2020, sales of dairy products in Vietnam reached VND 64.4 trillion, a growth rate of 10.3%. Vietnam's milk and dairy product sales are expected to remain at 7 - 8%/year in the period 2021 - 2025, reaching a total value of about VND 93.8 trillion by 2025.

In which, Vinamilk's fresh milk increasingly occupies the majority of the market. To meet the tastes and needs of consumers, Vinamilk has changed its production structure and brought many products to the market such as fresh milk, yogurt, condensed milk, powdered milk.... This trend. This is clearly shown when surveying Vinamilk's fresh milk consumption behavior in Thai Nguyen city. However, in order for Vinamilk's fresh milk production industries to stand firm and develop, one of the urgent requirements is that businesses need to really understand the desires and buying behavior of consumers in order

to promote them. promote consumption behavior of this item.

## II. RESEARCH METHODS

The study was conducted through 2 steps:

- Step 1: Conduct qualitative research by building and developing a system of concepts/scales and observed variables and correcting observed variables in accordance with reality.

- Step 2: Quantitative research, using Cronbach's Alpha reliability coefficient to test how closely the items in the scale correlate with each other; exploratory factor analysis (EFA) is used to test influencing factors and identify factors that are considered appropriate; at the same time, using Binary logistic regression analysis to determine the factors and the degree of impact of each factor on Vinamilk's fresh milk consumption behavior in Thai Nguyen city.

Research on a theoretical model of consumer behavior including a group of 3 influencing factors with the expected equation as follows:

$$\text{Log}_e \left[ \frac{P(Y=1)}{P(Y=0)} \right] = \beta_0 + \beta_1 \text{NTNTD} + \beta_2 \text{TĐNTD} + \beta_3 \text{KNNTD}$$

In there:

- The dependent variable (Y) is the consumer behavior of Vinamilk fresh milk. The variable Y only accepts two values 0 and 1 (0 is no longer buying and 1 is to continue buying)

- The independent variable ( $Y_1, Y_2, Y_3$ ) includes:

+ NTNTD (consumer perception -  $Y_1$ ): measured by 10 observations (from  $x_1$  to  $x_{10}$ )

+ Consumer confidence (consumer attitude -  $Y_2$ ): measured by 4 observations (from  $x_{11}$  to  $x_{14}$ )

+ Consumer experience (consumer experience -  $Y_3$ ): measured by 4 observations (from  $x_{15}$  to  $x_{18}$ )

In this study, the author used a Likert scale with a score of 1 to 5 to measure observed variables.

**Table 1:** Variables in the model

x <sub>1</sub>	Eye-catching product color and shape	x <sub>10</sub>	Products with clear origin
x <sub>2</sub>	The product has a clear and guaranteed nutritional composition	x <sub>11</sub>	Use products that are delicious and nutritious
x <sub>3</sub>	Products are carefully preserved	x <sub>12</sub>	Believe in product brand
x <sub>4</sub>	The price of the product is very reasonable	x <sub>13</sub>	Attracted by product packaging
x <sub>5</sub>	Product prices are quite stable	x <sub>14</sub>	Satisfied with product quality
x <sub>6</sub>	There are many attractive product promotions	x <sub>15</sub>	Consumer usage habits
x <sub>7</sub>	Easy to find and buy products	x <sub>16</sub>	The product is very tasty
x <sub>8</sub>	There is a wide range of products to choose from	x <sub>17</sub>	Consumers know how to use the product
x <sub>9</sub>	There are many places that sell products	x <sub>18</sub>	Consumers know where products are sold

### III. RESEARCH RESULTS AND DISCUSSION

To apply the model in practice, the author used primary data through direct distribution of 250 customers by means of random sampling in Thai Nguyen city and using SPSS software. To support the analysis, the results of the research model implementation are as follows:

Testing the reliability of the scale (Cronbachs' Alpha test) gives the results in Table 2. Through Table 2, we see that the Cronbachs' Alpha

coefficient reaches 0.862, proving that this scale is usable. However, if we consider the variable-total correlation coefficient, there are 3 variables that are excluded from the model because their value is less than 0.3. Those three variables are Easy to find and buy products (x<sub>7</sub>), Consumers' habit of using products (x<sub>15</sub>), Consumers know how to use products (x<sub>17</sub>). Therefore, the remaining 15 variables will be used in exploratory factor analysis (EFA).

**Table 2:** Results of assessing the reliability of the scale

Factor	Average of variable type	Scale variance if variable type	Variable-total correlation	Cronbach's Alpha coefficient if variable type
x1	62.63	134.549	.523	.886
x2	62.55	137.073	.578	.889
x3	62.35	135.247	.671	.884
x4	62.43	135.859	.533	.882
x5	62.98	133.460	.695	.881
x6	63.27	137.178	.559	.884

x7	63.48	142.627	.187	.893
x8	62.66	137.827	.581	.886
x9	62.33	137.894	.516	.884
x10	62.29	137.152	.647	.887
x11	63.26	135.781	.580	.883
x12	63.17	135.996	.572	.887
x13	63.67	134.429	.582	.885
x14	63.31	136.578	.557	.883
x15	64.04	145.216	.128	.899
x16	63.11	138.708	.541	.886
x17	63.96	143.277	.141	.900
x18	62.60	137.430	.590	.883
Cronbachs' alpha coefficient			0,862	

**Table 3:** Rotation matrix of factors

	Factor		
	1	2	3
x3	.865		
x4	.846		
x9	.786		
x1	.755		
x2	.746		
x10	.728		
x8	.704		
x5	.614		
x13		.779	
x11		.764	
x14		.708	
x6		.663	
x12		.655	
x16			.713
x18			.647

The results of exploratory factor analysis (EFA) with guaranteed tests are as follows:

- Reliability of observed variables (Factor loading > 0.5)
- Check the suitability of the model ( $0.5 < KMO = 0.846 < 1$ )
- Bartlett test on correlation of observed variables (Sig < 0.05)
- Test of cumulative variance = 67.892% (Cumulative variance > 50%)

According to the factor rotation matrix in Table 3, we have the factor loading coefficients of all variables greater than 0.5. We have 3 factors to be drawn:

- Factor 1 includes observed variables  $x_3, x_4, x_9, x_1, x_2, x_{10}, x_8, x_5$ , the authors still retain the factor name as originally proposed, which is consumer perception.

- Factor 2 includes observed variables:  $x_{13}, x_{11}, x_{14}, x_6, x_{12}$ , the authors still retain the factor name as originally proposed, which is the attitude of consumers.

- Factor 3 includes observed variables:  $x_{16}, x_{18}$ , the authors also retain the name of the factor as originally proposed, which is Consumer Experience.

**Table 4:** Factor scoring matrix

	Component		
	1	2	3
x1	.176	-.004	-.071
x2	.203	.038	-.217
x3	.203	-.063	-.017
x4	.210	-.049	-.070
x5	.141	.215	-.313
x6	-.067	.281	-.316
x8	.163	-.027	-.034
x9	.154	-.150	.196
x10	.114	-.156	.294
x11	-.069	.278	-.019
x12	-.096	.188	.176
x13	-.088	.287	-.002
x14	-.092	.237	.078
x16	-.126	.000	.499
x18	-.037	-.054	.423

Based on the results of coefficients with large values in the factor scoring matrix table in Table 4, we have the following factor equation:

- Factor 1, factor Consumer perception is largely influenced by 8 observed variables  $x_1$  (The color and shape of the product is eye-catching),  $x_2$  (The product has a clear and guaranteed nutritional composition),  $x_3$  (Products are carefully preserved),  $x_4$  (Product prices are very reasonable),  $x_5$  (Product prices are quite stable),  $x_8$  (There are many types of products to choose from),  $x_9$  (There are many places to sell products),  $x_{10}$  (Products of clear origin). These factors all affect positively with factor 1, in which the factor The very reasonable product price has the strongest impact on the perception of consumers.

$$Y_1 = 0.176 x_1 + 0.203 x_2 + 0.203 x_3 + 0.210 x_4 + 0.141 x_5 + 0.163 x_8 + 0.154 x_9 + 0.114 x_{10}$$

- Factor 2, the consumer's attitude factor is largely influenced by 5 observed variables  $x_6$  (There are many attractive product promotions),  $x_{11}$  (Using very delicious and nutritious products),  $x_{12}$  (Believe in product brand),  $x_{13}$  (Intrigued by product packaging),  $x_{14}$  (Satisfied with product quality). These factors all have a positive impact with factor

2, in which the factor Attracted by product packaging has the strongest impact on consumers' attitudes).

$$Y_2 = 0.215 x_6 + 0.278 x_{11} + 0.188 x_{12} + 0.237 x_{14} + 0.287 x_{13}$$

- Factor 3, the consumer's experience factor is affected by 2 observed variables  $x_{16}$  (Products are very palatable),  $x_{18}$  (Consumers know where the products are sold), in which the Product Highly palatable products have the strongest impact on the consumer experience.

$$Y_3 = 0.499 x_{16} + 0.423 x_{18}$$

The results of hypothesis testing about the general relevance have a significant level with the number of observations  $\text{sig} = 0.000$ , so it is safe. The value of  $-2 LL() = 84,914a$  is not high, representing a pretty good fit of the overall model. Besides, in 29 cases of no longer buying, the model correctly predicted 15 cases with a correct prediction rate of 51.7%. As for 137 cases of continuing to buy, the model correctly predicted 4 cases with a correct prediction rate of 97.1%. From that, the correct prediction rate of the whole model is calculated as 89.2%.

**Table 5:** Binary logistic regression results

	B	S.E.	Wald	df	Sig.	Exp(B)	
Step 1 <sup>a</sup>	Y1	.798	.258	9.594	1	.002	2.222
	Y2	1.007	.315	10.228	1	.001	2.736
	Y3	.147	.062	5.638	1	.018	1.158
	Constant	-9.075	1.931	22.085	1	.000	.000

The research results give the Binary Logistic regression model in Table 5 with the following equation:

$$\text{Log}_e \left[ \frac{P(Y=1)}{P(Y=0)} \right] = - 9.075 + 0.798\text{NTNTD} + 1.007\text{TĐNTD} + 0.147\text{KNNTD}$$

- Regression coefficient of consumer perception variable: When the consumer's perception increases by 1 unit, provided that the consumer's attitude and consumer experience are the same, the log of the The probability of continuing to buy and the probability of not buying any more will increase by 0.798 units (times).

- Regression coefficient of consumer attitude variable: When the consumer's attitude increases by 1 unit, provided that the consumer's perception and consumer experience are the same, the log of the probability ratio is the same. The probability of continuing to buy and the probability of not buying any more will increase by 1,007 units (times).

- Regression coefficient of consumer experience variable: When the consumer's experience increases by 1 unit, provided that the consumer's attitude and consumer perception are the same, the log of the The probability of continuing to buy and the probability of not buying any more will increase by 0.147 units (times).

#### IV. CONCLUSION

Experimental research results have identified 3 factors affecting Vinamilk's fresh milk consumption behavior in Thai Nguyen city according to their importance level: "Consumer's attitude", "Consumer's experience". consumption", "Consumer perception". Research results have provided a valuable practical scientific basis for promoting consumption behavior of this item in Thai Nguyen city. It is necessary to further promote product marketing policies such as improving product quality, stabilizing prices, and increasing advertising to further satisfy the tastes and consumption needs of customers.

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