

A Consumer-Driven Approach to the Development of OCOP Beverage Products in Hau Giang Province

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Abstract

OCOP is a national priority program aimed at effectively exploiting local resources to contribute to the development of the rural economy. In order to propose market development solutions for OCOP products in general, and OCOP beverages in Hau Giang province in particular, the current study has conducted interviews with processing facilities and stakeholders in the value chain, along with consumers. By using value chain analysis and contingent valuation method, the research findings indicate that OCOP processing facilities primarily sell their OCOP beverage products directly to local consumers and visitors, comprising approximately 79.1% of their sales. The findings also indicate that consumers are willing to pay a premium of 15.76% for OCOP certified beverages compared to the current price at which they are purchasing these products. The study also proposes some policy implications for the development of OCOP beverages.

Keywords: Beverage, Consumer behavior, Contingent valuation method, One commune One product, Willingness to pay.

INTRODUCTION

The "One Commune One Product" (OCOP) program, a national target initiative approved by the Vietnamese Prime Minister, aims to enhance internal resources and add value to agricultural products. Data from the Central Coordination Office reveals that as of December 2022, 63 provinces and centrally-run cities across the country have conducted evaluations and classifications for OCOP products. Among them, the Mekong Delta (MD) region stands out with the third-largest number of OCOP products nationwide, accounting for 17.3%. The updated data until May 2023 from the Sub-department of Rural Development as well as the Provincial Coordination Office of New Rural Program shows that the entire MD region has 2054 OCOP products, including 1355 products with a 3-star rating, 689 products with a 4-star

rating, and 10 products with a 5-star rating. By establishing sustainable supply chains, increasing value for producers, and ensuring product quality and safety, the OCOP program contributes to diversified economic development (Witkowski, 2006; Natsuda et al., 2012; Anh, 2013; Hoang Thanh et al., 2018).

There has been a growing trend in recent years towards supporting local farmers and producers. Many consumers value locally sourced food for various reasons, such as freshness, quality, supporting the local economy, and reducing environmental impact through shorter supply chains (Feldmann & Hamm, 2015; Ferrazzi et al., 2017; Skallerud & Wien, 2019; Schrager, 2021).

Hau Giang Province, situated in the agricultural heartland of the Mekong Delta, offers immense opportunities for trade promotion and

agricultural product exports. The province has implemented the "One Commune, One Product" (OCOP) program, which has successfully recognized 175 products meeting 3-star and 4-star OCOP standards through three evaluations, involving 52 enterprises. With the six groups of OCOP products, notable OCOP products include various food items such as chitala fish products and pineapple-based products, as well as beverages like graviola tea, Lao Tuu Ut Tay wine, and goat's milk derivatives. These OCOP products have gained popularity and become cherished gifts during festive occasions. However, challenges persist for manufacturing businesses and retailers in the industry. Firstly, upgrading physical facilities to meet higher certification standards is necessary to penetrate demanding markets, including international markets, and to raise awareness among consumers both within and beyond the province. Secondly, consumer awareness of OCOP products remains relatively low, impacting their perceived quality and market reach. Thirdly, limited research has been conducted on distribution channels, agent profitability, and domestic consumer preferences specifically within the OCOP beverage industry. To address these challenges, this study was conducted with a focus on exploring the main distribution channels, agent profitability, and domestic consumer preferences for OCOP beverage products produced in Hau Giang province. The findings aim to provide valuable insights for industry stakeholders and contribute to the

sustainable growth and market competitiveness of the OCOP beverage sector in Hau Giang Province.

LITURATURE REVIEW

2.1. OCOP program and beverage products in Hau Giang province

In recent decades, several countries in East Asia have implemented rural construction and development programs, with notable success seen in the "one village, one product" (OVOP) program in Japan, Thailand, and Korea. Japan pioneered the OVOP program in 1979 in Oita prefecture and achieved significant accomplishments (Knight, 1994; Fujita, 2006; Igusa, 2008).

The OCOP movement in Vietnam, inspired by the OVOP program developed in Oita prefecture, Japan in 1979, was first tested in Quang Ninh province in 2013. It has since been implemented nationwide since 2018 under the decision 490/QĐ-TTg approved by Deputy Prime Minister Vuong Dinh Hue. OCOP products represent local and domesticated goods that leverage natural conditions, cultural heritage, genetic resources, local knowledge, and technology advantages. Small and medium-sized enterprises, cooperatives, and households with business registration serve as the driving forces behind these products. The updated number of OCOP products in the MD regions is summarized in Table 1 below:

Table 1: Number of OCOP products by provinces in the Mekong Delta

No.	Province	Number of OCOP products			Total
		3-star rating	4-star rating	5-star rating	
1	Dong Thap	275	82		357
2	Ben Tre	110	86	4	200
3	Soc Trang	169	19	1	189
4	Tra Vinh	138	43	3	184
5	Kien Giang	133	43	0	176
6	Hau Giang	107	68	0	175
7	Tien Giang	79	95	0	174

8	Ca Mau	122	6	0	128
9	Bac Lieu	85	23	0	108
10	Vinh Long	32	66	0	98
11	Can Tho	34	58	0	92
12	An Giang	16	70	2	88
13	Long An	55	30	0	85
Total		1355	689	10	2054

Source: Synthesized from authors (2023)

In Hau Giang Province, OCOP beverage products encompass two main categories: alcoholic beverages (such as pineapple wine, Lao Tuu Ut Tay wine, Sanh orange wine) and non-alcoholic beverages (such as Ngoc Dao goat milk - pasteurized fresh milk). These products are currently undergoing standardization under the OCOP framework of standards.

2.2 Overview of studies related to value chain analysis

The concept of value chains has its origins in two fundamental ideas: (1) the concept of "chains" (filière) that emerged in France during the 1960s, and (2) the notion of industry chains (commodity chains) introduced by Wallerstein (1974). In 1985, Michael Porter brought attention to the value chain concept by analyzing the factors that contribute to creating and sustaining a sustainable competitive advantage for organizations at the enterprise level. Durufle et al. (1988) studied the economic and financial assessment of chains using the filier method. The concept of commodity chains served as the foundation for the development of global commodity chains by Gereffi and Korzeniewicz (1993) and the study of agricultural commodity distribution by Raikes et al. (2000). Gereffi and Korzeniewicz (1995) and Kaplinsky and Morris (2000) further advanced a global approach to value chains. Kaplinsky (2000) defined value chains as the series of activities involved in transforming a product from its conception, through various stages of production, distribution to the final consumer, and eventually disposal after use. According to

Kaplinsky and Morris (2000), for a value chain to exist, all participants within the chain must collaborate to create maximum value throughout the entire chain. Numerous organizations have applied the value chain approach in their research and developed analytical frameworks. While various approaches to value chains exist, research suggests that the sustainability and effectiveness of a chain are enhanced when actors within the chain cooperate and establish strong linkages. Trust among actors is identified as a crucial element in strengthening the chain (Corbett et al., 1999; Barratt & Oliveira, 2001; G & C, 2001; Freidman, 2005). Several domestic studies have applied value chain analysis methods to determine processing and consumption patterns, distribution channels, product quality, value-added analysis, and the equitable redistribution of benefits among actors within the value chain (Anh et al., 2005; Loc & Khoi, 2011; Viet, 2014; Loc, 2016). This literature review provides an overview of the evolution of the value chain concept and highlights the contributions of various researchers and organizations in this field.

2.3. Overview of consumer's preference and willingness to pay

Consumer behavior research aims to uncover the needs, preferences, tastes, and habits of individuals when it comes to purchasing goods and services (Kotler et al., 2008). According to Lamb et al. (2015), consumer behavior involves the decision-making process that consumers go through when deciding whether to consume or discard a particular product or

service. Consequently, consumers gather information, either complete or incomplete, about various goods and make choices based on their satisfaction of needs and preferences. Trang et al. (2022) indicates that consumer willingness to pay is influenced by three groups of variables: (1) marketing variables, (2) individual variables, and (3) social variables.

This study adopts Kaplinsky & Morris's global value chain approach in combination with an analysis of consumer preferences to analyze and propose solutions for the development of the OCOP beverage products in Hau Giang province in particular and Mekong Delta in general. The aim is to identify the factors that impact consumer willingness to pay for OCOP beverage products and subsequently suggest strategies for the development in Hau Giang province.

Numerous studies have applied the willingness to pay approach to products and services that lack market prices to understand the determinants of consumers' willingness to pay and their willingness to pay a premium for products that align with their demands. To achieve sustainable agriculture, environmental protection, and rural economic development, it is crucial to establish a shared mechanism of responsibility for both farmers and consumers. Encouraging individual consumers to adopt eco-friendly lifestyles is one approach (O'Neill & Nicholson-Cole, 2009). Labeling programs that consider eco-friendly practices, product traceability, and fair trade have been implemented to empower consumers to make environmentally conscious choices (Onozaka et al., 2016). Numerous studies have demonstrated that consumers are willing to pay a premium for eco-friendly products (Onozaka & McFadden, 2011; Caputo et al., 2013; Khai & Yabe, 2015; Onozaka et al., 2016). Fair trade principles aim to ensure equitable distribution of benefits along the value chain. Previous studies have consistently shown that farmers receive the smallest share of net value added compared to other actors in the value chain

(Loc & Son, 2011; Loc, 2016; Trang et al., 2019; Son et al., 2020). Therefore, considering fair distribution of benefits to farmers and producers is essential for rural economic development.

This literature review provides insights into consumer behavior research and its application in the development of the OCOP beverage industry. By incorporating the global value chain approach and analyzing consumer preferences, the study aims to uncover the factors influencing consumer willingness to pay for OCOP beverages and offers recommendations to foster industry growth in Hau Giang province.

METHODOLOGY

3.1. Data collection

The study conducted direct interviews with 4 processing facilities/businesses of OCOP beverages in Hau Giang province. Using a value chain approach, the research also involved 4 distributors/retailers of OCOP beverage products and 2 supermarkets.

When selecting the sample of consumers in Hau Giang province, which includes 2 cities, 1 town, and 5 districts, there are several options to consider. For the main interviews, it is recommended by local authorities to focus on four districts: Phung Hiep district, Chau Thanh district, Vi Thanh city, and Nga Bay city. These areas have higher population densities and are renowned for their abundance of OCOP products. Therefore, it can be assumed that the consumers in these regions possess a good understanding of the OCOP program and the OCOP beverage products, including Sanh Orange wine, Lao Tuu Ut Tay wine, Pineapple wine, and Ngoc Dao goat milk. To facilitate the data collection, a non-probability sampling technique so-called snow-ball sampling approach was employed to select consumers who used to buy the OCOP beverage products and were willing to participate in the survey.

Table 2: Sample size of the study

Actors	Observation	Ngoc Dao Goat milk	Sanh Organe Wine	Pineapple Wine	Lao Tuu Ut Tay Wine
Processing factor	4	1	1	1	1
Sale agent	4	1	1	1	1
Supermarket	2				
Consumer	100	25	25	25	25

Source: Survey conducted by the authors in 2021, n=110

3.2. Data analysis

The current study employs two primary methods for data analysis: value chain analysis and the Contingent Valuation Method (CVM).

In the value chain analysis, the research focus on the following aspects:

□ Mapping the value chain of beverage products: This step aims to provide a comprehensive overview of the distribution channel and identify opportunities for chain upgrading.

□ Quantification and detailed description of value chains: The study will quantify and provide detailed descriptions of the value chains involved in the production and distribution of the beverage products.

□ Economic analysis of the value chain: The economic analysis will encompass several key concepts, including:

a. Value: This refers to the selling price of each agent's product within the value chain.

b. Added value between two agents: It represents the difference in the selling price of

the product between two agents within the chain.

c. Value added (VA) in each agent: This represents the difference between the selling price and the intermediate cost (IC) incurred by each agent.

d. Intermediate cost: It corresponds to the purchase price of input materials for the subsequent agent in the chain.

e. Added cost (AC): This includes all remaining costs such as labor, depreciation, interest, and taxes, excluding intermediate costs.

f. Total cost (TC): It encompasses the input or intermediate cost plus the additional cost.

g. Net Value Added (NVA) of each actor: It refers to the profit obtained by subtracting the total cost from the selling price for each actor within the chain.

h. Net Value Added Allocation in the chain: This represents the percentage of each actor's profit within the whole chain, with the total chain profit amounting to 100%.

$$\text{Added value} = (\text{Selling price} \times \text{Quantity}) - \text{Intermediate cost} \quad (1)$$

$$\text{Net added value} = \text{Added value} - \text{Added cost} \quad (2)$$

$$\text{Total cost} = \text{Added Cost} + \text{Intermediary Cost} \quad (3)$$

In addition to value chain analysis, the study will also employ the Contingent Valuation Method (CVM) to assess consumer preferences and willingness to pay for the OCOP beverage products.

The study presents consumers with a scenario highlighting the benefits of OCOP standardized beverage products, such as origin, food safety and hygiene, and environmental protection, ... One of the strategies to maintain and develop

production scale is to improve product quality and increase income for participants in the production process. Since the OCOP product production requires higher investment and efforts compared to conventional products, a higher selling price is necessary to increase income for OCOP producers. Based on the current consumer purchase price of non-OCOP recognized beverage products, the study offers bid prices at four different levels: 10%, 15%, 20%, and 25% higher.

To estimate the factors influencing willingness to pay and the actual willingness to pay for OCOP standardized beverage products in Hau Giang province, the study utilizes the Contingent Valuation Method (CVM).

Following Onyango et al. (2006); Khai (2015); Khai and Yabe (2015); Tu et al. (2021); Trang et al. (2023), the consumer's utility function is described by the following linear function:

$$U_i(z_i, u_i) = z_i\beta + u_i$$

z_i represents the explanatory or independent variables that influence consumers' willingness to pay. The parameters to be estimated are denoted as β , and u_i represents the error term in the equation. The variables z_i encompass three groups of factors, namely social, individual and marketing (Trang et al., 2022), these variables are presented in Table 3 below:

Table 3: Explanatory variables in the binary regression model

Groups	Variable name	Variable explanation	Expected sign	Source
Dependent variable	WTP	Willing to pay (1= agree; 0= disagree)		
	Bid prices	10%; 15%; 20%; 25%	-	Kotler <i>et al.</i> (2008); Khai (2015); Khai and Yabe (2015); Tu <i>et al.</i> (2021); Trang <i>et al.</i> (2022); Trang <i>et al.</i> (2023)
Marketing variable	Price sensitive	Measured through exploratory analysis.	-	Suwannaporn and Linnemann (2008); Suwannaporn <i>et al.</i> (2008); Tu <i>et al.</i> (2021); Trang <i>et al.</i> (2023)
	Ages	Age of the interviewee	+	Khoi and Ngan (2014); Do <i>et al.</i> (2015); Khai and Yabe (2015); Khai and Phuong (2020); Tu <i>et al.</i> (2021); Trang <i>et al.</i> (2023)
Individual variables	Education	The number of years of schooling	+	
	Gender	1= male; 0= female	+	
	Income	Million VND	+	Khoi and Ngan (2014); Do <i>et al.</i> (2015); Tu <i>et al.</i> (2021); Trang <i>et al.</i> (2023)
Social variable	Family size	Number of family members	-	Do et al. (2015); Khoi and Ngan (2014); Trang et al. (2023); Tu et al. (2021)
	Imported products	1= imported products, 0= OCOP standardized	-	

products.

Awareness of OCOPI standardized products	of 1= Don't understood	OCOP standardized knowledge ; 0= heard and about OCOPI	+
Environmental consciousness	Measured exploratory analysis.	through factor	+

The probability of obtaining a positive response at the specified bid price can be represented by the following formula:

$$\begin{aligned} Pr Pr(z_i) &= Pr Pr(U_i \geq p_i) \\ &= Pr Pr(z_i\beta + u_i \geq p_i) \\ &= Pr (u_i \geq p_i - z_i\beta) \end{aligned}$$

Assuming u_i follows a normal distribution $u_i \sim N(0, \delta_i)$, we got:

$$\begin{aligned} Pr Pr(z_i) &= Pr Pr\left(v_i \geq \frac{p_i - \hat{z}'_i\beta}{\delta}\right) \\ &= 1 - \Phi\left(\frac{p_i - \hat{z}'_i\beta}{\delta}\right) \\ Pr Pr(z_i) &= \Phi\left(\hat{z}'_i\frac{\beta}{\delta} - p_i\frac{1}{\delta}\right) \end{aligned}$$

The Probit model is utilized to estimate two coefficients: $\hat{\alpha} = \frac{\beta}{\delta}$ (representing the coefficients of the explanatory variables z_i in the model) and $\hat{\delta} = \frac{-1}{\delta}$ is coefficients of the price variable (bid values). Therefore, the estimated expected value of willingness to pay can be calculated as follows:

$$E(\hat{z}, \beta) = \hat{z}'_i \left(-\frac{\hat{\alpha}}{\hat{\delta}}\right) (*)$$

RESULTS AND DISCUSSION

4.1. Characteristics and roles of actors in the value chain

The OCOPI standardized beverage value chain in Hau Giang province operates through the interconnectedness and collaboration of various

actors involved in the production and consumption process. Alongside the direct participants in the chain, there are also actors who serve as input suppliers and provide financial and technical support throughout the production and distribution stages.

In the processing sector, the facilities play a crucial role as they encompass both production and business functions. It is important to investigate whether the processing facilities are effectively integrated into the production function, while also considering the farmers who supply the raw materials as part of the input function. The owners of these facilities typically possess 4-15 years of experience. Each enterprise requires 1-2 family workers and hires an average of 2 additional female workers with a monthly salary of approximately 3.5 million VND.

The primary customer segment for the four target enterprises is comprised of local consumers and tourists, accounting for around 70.9% of their sales. Additionally, they sell their products to other geographic locations in neighboring provinces, representing approximately 20.1% of their sales. The average prices for the processed beverage products are as follows: Sanh orange wine is priced about 156,000 VND/liter, pineapple wine 300,000 VND/liter, Lao Tuu Ut Tay wine 150,000 VND/liter, and goat milk 90,000 VND/liter. It is worth noting that most establishment owners have not undergone any training courses, nor have they signed output contracts with agents and supermarkets or input contracts with raw material suppliers.

- For Sanh orange wine production, the average daily capacity of the processing facility

ranges from 70 to 80 liters. The establishments typically purchase approximately 2.5 tons of oranges per year as raw materials. The purchase price for the oranges directly from the gardens ranges from 9,000 to 11,000 VND per kilogram, and the payment is made in cash on a one-time basis. The establishments specifically choose grade 1 fruits without any damage to ensure the quality of the raw materials used in the production process.

- For Lao Tuu Ut Tay wine production, the processing facility have a capacity ranging from 120 to 280 liters per day. On average, they purchase around 10 tons of broken rice as raw material per year. The purchase price for the broken rice ranges from 13,000 to 15,000 VND per kilogram. The establishments usually buy the rice from cooperatives and make cash payments. The selection criteria for raw materials include choosing broken rice with a pleasant aroma, without any artificial flavoring, moisture.

- For pineapple wine production, the processing facility have a capacity ranging from 50 to 60 liters per day. They initially purchase approximately 3 tons of pineapples as raw material per year, with a purchase price ranging from 8,000 to 10,000 VND per kilogram. The payments are made in cash directly to the farmers. When purchasing, priority is given to type 1 pineapples, weighing 1 kilogram or more, without any pests or excessive ripeness.

- In the case of goat milk production, the average capacity of the facility is around 40 to 50 liters per day. They produce approximately 8 tons of pure goat milk per year. The processing facility also rear goats and collect milk from them daily. The grass used for feeding the goats is grown naturally without the use of fertilizers.

Retail agent inside and outside the province: There are 70% retail agents of OCOP products. The distribution of retail agents for OCOP products, both within and outside Hau Giang province, is as follows: 70% of the retail agents are located in other provinces, while the remaining 30% operate within Hau Giang

province. The revenue generated from OCOP beverage products contributes to approximately 10% to 40% of the total sales for these agents.

The specific revenue and profit figures for each OCOP beverage product are as follows:

□ Sanh orange wine: Revenue is approximately 18 million VND per product per year, with a profit of 2.45 million VND per product per year.

□ Pineapple wine: Revenue is approximately 7.75 million VND per product per year, with a profit of 5.63 million VND per product per year.

□ Lao Tuu Ut tay wine: Revenue is approximately 153 million VND per product per year, with a profit of 28.8 million VND per product per year.

□ Goat milk: Revenue is approximately 432 million VND per product per year, with a profit of 41.76 million VND per product per year.

Retail agents typically purchase directly from processing facilities and make cash payments. The total output for the four products is approximately 4,975 liters per year, with the breakdown as follows: 100 liters of Sanh orange wine (or 200 bottles), 25 liters of pineapple wine (or 50 bottles) with a selling price of 310,000 VND per liter, 1,200 liters of Lao Tuu Ut Tay wine (or 2,400 bottles) with a selling price of 170,000 VND per liter, and approximately 3,600 liters of pasteurized goat milk (corresponding to 608 bottles) with a selling price of 120,000 VND per liter.

Retail agents within Hau Giang province primarily sell the products directly to local consumers and visitors, while agents outside the province focus on industrial consumption, serving establishments such as restaurants and cafeterias.

Supermarkets, both within and outside Hau Giang province, purchase the following quantities of OCOP beverage products:

□ Pasteurized goat milk: Supermarkets buy approximately 1,460 liters per year,

generating a revenue of 217.5 million VND and a profit of 217.355 million VND. The selling price for goat milk is 150,000 VND per liter.

- Lao Tuu Ut Tay wine: Supermarkets purchase 500 liters, which is sold at a price of 175,000 VND per liter.
- Sanh orange wine and pineapple wine: Supermarkets acquire about 50 liters of each type of wine.

Individual consumers

The survey reveals that the majority of consumers express satisfaction after using OCOB standard beverage products, leading them to decide to make future purchases.

Gender plays a role in consumers' decision-making process, particularly for alcohol products. Approximately 62% of men tend to buy more OCOB beverages compared to 38% of women. The age group between 20 and 39 years old constitutes the highest proportion of consumers.

In terms of occupations, farmers account for 39% of alcohol consumers, while state employees, company owners, and enterprise employees collectively represent 16%. Housewives primarily purchase Ngoc Dao goat milk, making up 23% of the consumer base.

The average household income is approximately 35 million VND per month, with the highest reported income reaching 45 million VND per month.

4.2. OCOB beverage value chain map of Hau Giang province

The value chain map provides a holistic overview of the OCOB Hau Giang standardized beverage industry, encompassing various stages including input, processing, sales, and consumers. This map illustrates the interconnectedness of different actors involved in the industry, forming a chain that links producers to consumers.

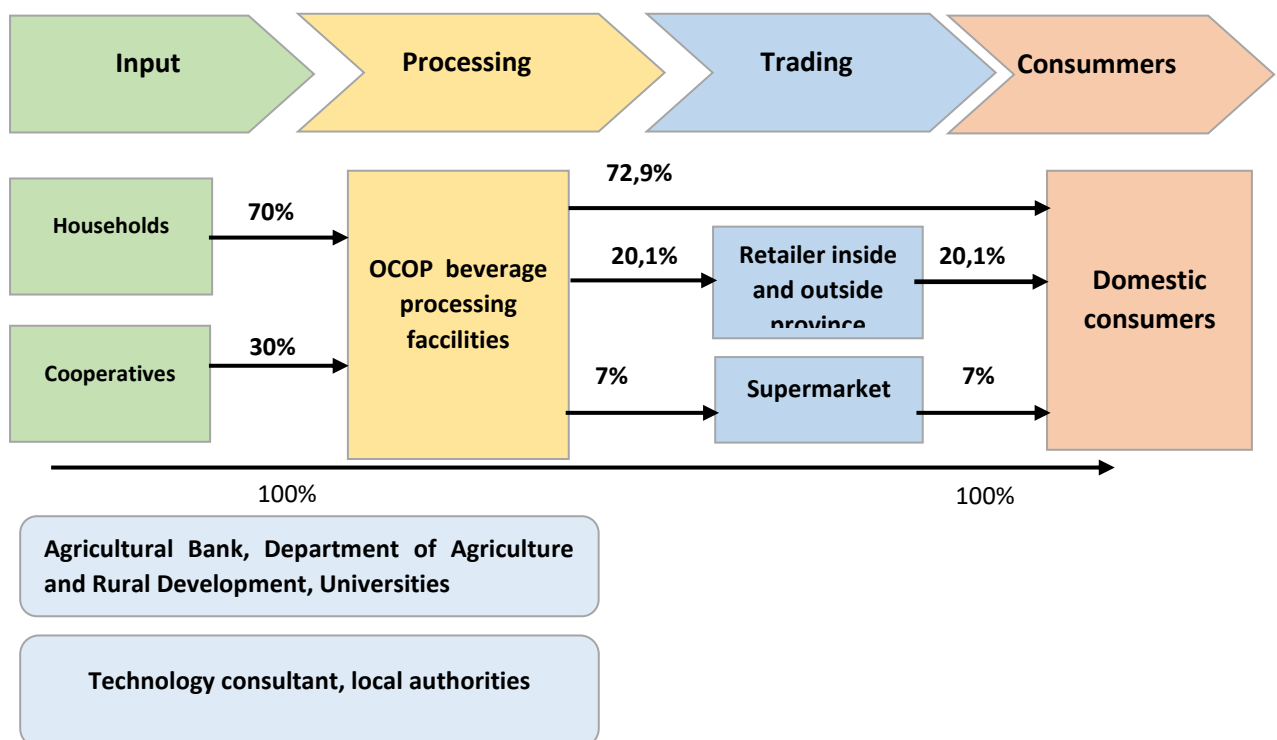


Figure 1: OCOB beverage value chain diagram in Hau Giang province

Source: survey results in 2021, n=110

As shown in Figure 1, the OCOB beverage value chain in Hau Giang province has 3 main channels

Channel 1: OCOB standardized beverage processing factory → Consumers

According to the survey, Channel 1 accounts for the majority of OCOP standardized beverage consumption in the chain. Approximately 72.9% of the output from processing facilities is sold directly to consumers.

Channel 2: OCOP standardized beverage processing facilities → Retailers inside and outside the province → Consumers

Based on the survey findings, processing facilities distribute around 17.1% of their products to agents both within and outside the province, who then sell the beverages to consumers.

Channel 3: OCOP standardized beverage processing factory → Supermarket → Consumers

In this channel, processing facilities allocate 10% of their products to supermarkets within and outside the province, and these supermarkets subsequently sell the beverages to consumers.

Table 4 shows that the processing facilities in the value chain require substantial capital investment for machinery systems and logistics costs for input procurement. Therefore, they often supply goods based on orders from familiar agents to mitigate risks rather than involving intermediaries. The conversion rates for OCOP wine production are approximately 4 kg of fresh oranges for 1 liter of orange wine, 7 kg of fresh pineapple for 1 liter of pineapple wine, and 3 kg of broken rice for 1 liter of Lao Tuu Ut Tay wine.

Table 4: Average output, selling price and revenue of processors

Indicators	Unit	Sanh Orange Wine	Pineapple Wine	Lao Tuu Ut Tay wine	Milk goat
Quantity	Liter/year	800	350	7.500	14.600
Cost	1000VND/liter	92,5	132,5	102	80,6
Price	1000VND/liter	156	300	150	90
Revenue	Millions VND/year	124	105	1.125	1.314
Profit	Millions VND/year	51,6	56,625	360	137,2

Source: survey in 2021, n=4

4.3. Chain economic analysis for beverage products OCOP

The research aims to determine the added value generated by each agent in the OCOP beverage value chain within each distribution channel. This analysis serves as a foundation for proposing effective strategies to enhance the development of the category.

By assessing the value created by each agent, the research will provide insights into their contributions to the overall value chain. This analysis will help identify areas where value can be optimized and potential bottlenecks or inefficiencies in the distribution channels. The analysis of value distribution among actors is presented in Table 5.

Table 5: Added value distribution of OCOP beverage products in Hau Giang province

Unit: 1000VND/liter

Items	Processing factory	Retailer	Supermarket	Total
Chanel 1(Sanh orange Wine): Processing factory – Retailer – Consumers				
Price	140	180		
Intermediate cost	42	140		
Value added	98	40		138
Added cost	50.5	15.5		
Net value added	47.5	24.5		72
% Added cost	71	29		100
% Net value added	66	34		100
Channel 2 (Sanh orange Wine): Processing factory – Consumers				
Price	156			
Intermediate cost	42			
Value added	114			114
Added cost	50.5			
Net value added	63.5			63.5
% Added cost	100			
% Net value added	100			
Channel 3 (Sanh orange Wine): Processing factory – Supermarket – Consumers				
Price	140		185	
Intermediate cost	42		140	
Value added	98		45	143
Added cost	50.5		12.3	
Net value added	47.5		32.7	80.2
% Added cost	68.5		31.5	100
% Net value added	59.2		40.8	100
Channel 1(Pineapple Wine): Processing factory – Retailers – Consumers				
Price	280	310		
Intermediate cost	65	280		
Value added	215	30		245
Added cost	67.5	7.5		
Net value added	147.5	22,5		170
% Added cost	87.8	12.2		100
% Net value added	86.8	13.2		100
Channel 2 (Pineapple Wine): Processing factory – Consumers				
Price	300			
Intermediate cost	65			
Value added	235			235
Added cost	67.5			
Net value added	167.5			167.5
% Added cost	100			100
% Net value added	100			100
Channel 3 (Pineapple Wine): Processing factory – Supermarket– Consumers				
Price	280		320	
Intermediate cost	65		280	
Value added	215		40	255

Added cost	67,5	15	
Net value added	147,5	25	172,5
% Added cost	84,3	15,7	100
% Net value added	85,5	14,5	100
Channel 1 (Lao Tuu Ut Tay Wine): Processing factory – Retailers – Consumers			
Price	130	170	
Intermediate cost	27	130	
Value added	103	40	143
Added cost	75	8	
Net value added	28	32	60
% Added cost	72	28	100
% Net value added	46.7	53.3	100
Channel 2 (Lao Tuu Wine): Processing factory – Consumers			
Price	150		
Intermediate cost	27		
Value added	123		123
Added cost	75		
Net value added	48		48
% Added cost	100		100
% Net value added	100		100
Channel 3 (Lao Tuu Ut Tay Wine): Processing factory – Supermarket – Consumers			
Price	140	175	
Intermediate cost	27.5	140	
Value added	112.5	35	147,5
Added cost	75	8.5	
Net value added	37.5	26.5	64
% Added cost	76.3	23.7	100
% Net value added	58.6	41.4	100
Channel 1 (Goat milk): Processing factory – Retailers – Consumers			
Price	84	120	
Intermediate cost	50	84	
Value added	34	36	70
Added cost	20.6	24.4	
Net value added	13.4	11.6	25
% Added cost	48.6	51.4	100
% Net value added	53.6	46.4	100
Channel 2 (Goat milk): Processing factory – Consumers			
Price	90		
Intermediate cost	50		
Value added	40		40
Added cost	20.6		
Net value added	19.4		19.4
% Added cost	100		100
% Net value added	100		100
Channel 3 (Goat milk): Processing factory – Supermarket– Consumers			
Price	87	155	
Intermediate cost	50	87	
Value added	37	68	105
Added cost	20.6	5.5	
Net value added	16.4	62.5	78.9
% Added cost	35.2	64.8	100
% Net value added	20.8	79.2	100

Source: Author's calculation from the survey in 2021, n=10

The research findings indicate that production facilities primarily sell their OCOP beverage products directly to local consumers and

visitors, comprising approximately 79.1% of their sales. However, the quantity of sales and the resulting added value from this channel are

relatively low. To stimulate production and business growth, it is crucial to emphasize the promotion of channels 2 and 3, which involve selling to supermarkets and agents, respectively.

Expanding sales through these channels presents an opportunity to increase output and enhance the added value of OCOP beverage products. Selling through supermarkets can lead to wider market reach and higher sales volumes, while collaborating with agents can facilitate distribution to various regions and consumer segments.

By strategically targeting these channels, production facilities can tap into larger customer bases, leverage the established distribution networks of supermarkets and

agents, and ultimately boost both the quantity and value of their products. This approach will contribute to the overall development and success of the OCOP beverage category in the market.

4.4. Consumers' preferences and willingness to pay

Table 6 shows that consumers commonly exhibit a preference for branded products that offer good quality, affordability, and are made from natural ingredients while maintaining high standards of hygiene. Fortunately, the majority of consumers who have used OCOP beverage products express satisfaction with their experience and intend to make repeat purchases.

Table 6: Consumers who have purchased OCOP beverage products

Products	Purchased		Never purchased	
	Amount of people	Percentage (%)	Amount of people	Percentage (%)
Sanh orange wine	41	41	59	59
Lao Tuu Ut Tay wine	59	59	41	41
Pineapple wine	26	26	74	74
Goat milk	35	35	65	65

Source: survey results in 2021, n=100

4.4.1 Criteria that consumers concern when making purchasing decisions

Table 7 indicates that consumers prioritize certain criteria when making purchasing decisions, particularly focusing on quality standards and nutritional values. Therefore, production and sales establishments should place a greater emphasis on promoting these attributes associated with their products.

The quality of the product, including its taste, and overall sensory experience, is of utmost importance to consumers. They seek assurance that the products they purchase meet stringent quality standards and deliver a consistent and enjoyable experience. Additionally, consumers are increasingly concerned about the nutritional value of the beverages they consume. They

look for products that provide health benefits, such as being rich in vitamins, minerals, or other beneficial ingredients.

To effectively engage with consumers, production and sales establishments should prioritize the promotion of cultural values and product stories. This can help establish an emotional connection with consumers and differentiate the brand in a crowded market. By highlighting the traditions, or unique aspects of the product, establishments can create a sense of authenticity and appeal to consumers' desire for products that have a story to tell.

By addressing consumer concerns regarding quality standards and nutritional values, and effectively communicating the cultural values and product stories, establishments can

establish a strong connection with consumers and build trust in their brand. This, in turn, can contribute to increased sales and consumer loyalty.

Table 7: Criteria that consumers care about when buying products

Criteria	Mean	St.dev
Packaging design	9.18	0.56
Labeling	9.38	0.74
Origin	8.8	1.13
Packaging process	8.39	0.93
Taste	9.0	1.63
Sweetness	8.59	1.03
Quality standards	9.97	0.22
Price	9.54	0.67
Friendly Environment	9.21	0.62
Nutritional values	9.96	0.19
Cultural values	7.54	0.77

Source: survey results in 2021, n=100

Convenience and cost-saving considerations play a significant role in consumer purchasing behavior. The majority of consumers tend to buy products in close proximity to their residential areas, as it offers convenience and helps them save time and travel expenses. The primary purchasing channels for consumers include fairs, which account for 58% of purchases, followed by visiting the production facilities and their display locations, which account for 24% of purchases. Online purchases represent 5% of the total, while local residents buying directly from production facilities account for 4% of purchases.

When making purchases, consumers have different purposes in mind. One common purpose is to give the products as gifts to others, indicating the intention to share the unique and high-quality OCOP standardized beverage products with friends, family, or acquaintances. Another purpose is to taste the

products themselves, driven by a desire to experience the flavors, quality, and cultural values associated with the beverages.

Understanding these consumer preferences and purchase motivations is essential for production and sales establishments. By strategically positioning their products at local fairs, creating engaging displays at their production facilities, and providing convenient online purchasing options, establishments can cater to consumer needs and capture a larger share of the market. Emphasizing the suitability of their products as gifts and promoting the opportunity to indulge in a delightful tasting experience can also be effective marketing strategies to attract and retain customers.

4.4.2. Consumers` willing to pay for OCOP beverage products

Table 8 illustrates a clear trend in consumer behavior regarding their willingness to pay at different bid prices. As the bid price increases, there is a corresponding decrease in the number of consumers willing to pay. Specifically, when the bid price is set at a 25% increase compared to the current price, only 4 individuals agree to pay. However, if the price increase is reduced to 20%, the number of willing participants rises to 8. Further lowering the bid price increase to 15% results in 9 individuals agreeing to pay. Finally, at a bid price increase of 10%, the highest number of individuals, totaling 19, express their agreement to pay.

The primary reason behind consumers' unwillingness to pay higher prices is the perceived discrepancy between the increased price and their total income. The higher prices exceed their budgetary limits and pose a strain on their financial resources. This finding emphasizes the importance of considering consumers' income levels and their ability to afford OCOP beverage products at various price points. To maintain consumer interest and maximize market potential, it may be necessary to explore pricing strategies that align with consumers' income brackets while still ensuring profitability for the producers.

Table 8: Statistics on consumers' willingness to pay for OCOP standardized beverage products

Bid price	Obs.	Responds to willingness to pay			
		Agree		Disagree	
		Freq.	%	Freq.	%
10%	25	19	76	6	24
15%	25	9	36	16	64
20%	25	8	32	17	68
25%	25	4	16	21	84
Total	100	40	100	60	100

Source: survey results in 2021, n=100

To determine the factors that affect consumers' willingness to pay for OCOP beverage products, a Probit regression analysis is employed. This statistical method allows for the examination of various factors and their impact on the likelihood of consumers being willing to pay for these products.

The Probit regression model estimates the probability of consumers' willingness to pay based on a set of explanatory variables. These variables can include socio-demographic factors such as age, gender, income, and occupation, as well as product-related factors like quality, brand reputation, and nutritional value. Other variables related to consumer behavior, such as buying habits and preferences, can also be considered.

By analyzing the coefficients of the Probit regression model, we can determine which factors have a significant influence on consumers' willingness to pay. These coefficients indicate the direction and magnitude of the effect each variable has on the probability of consumers being willing to pay for OCOP beverage products. Positive coefficients suggest that an increase in the corresponding variable leads to a higher probability of willingness to pay, while negative coefficients indicate the opposite effect. The descriptive analysis of independent and impendent variables is presented in Table 9.

Table 9. Variables affecting consumers' willingness to pay

Groups	Variable	Variable explanation	Mean	St.Dev
Dependent variable	WTP	Willing to pay (1= agree; 0= disagree)	0.4	0.49
	Bid prices	10%; 15%; 20%; 25%	17.5	5.62
Marketing variables	Price sensitive	Measured through exploratory factor analysis.	4.077	0.589
Individual variables	Ages	Age of the interviewee	39.67	12.58
	Education	The number of years of schooling	10,68	3.59

	Gender	1= male; 0= female	0.45	0.5
	Income	Million VND	27.82	6.98
	Family size	Number of family members	4.31	1.47
	Imported products	1= imported products, 0= OCOP standardized products.	0.72	0.45
Social variables	Awareness of OCOP standardized products	1= OCOP standardized product knowledge ; 0= Don`t heard and understood about OCOP	0.33	0.47
	Environmental consciousness	Measured through exploratory factor analysis.	3.915	0.56

Source: survey results in 2021, n=100

The price sensitivity variable is derived by calculating the mean of three variables: (1) Regular comparison of prices between environmentally friendly produce (or organic products) and conventional products, (2) Tendency to stock up on groceries when they are discounted, and (3) Willingness to visit multiple stores to find the best-priced products while shopping.

The environmental awareness variable is assessed by averaging the values of four component variables: (1) Belief that environmentally friendly farming practices

promote the growth of wild animals and plants, (2) Understanding that environmentally friendly farming contributes to the health protection of producers and consumers, (3) Recognition of the potential of environmentally friendly farming to reduce environmental pollution, and (4) Acknowledgment that environmentally friendly farming is an effective means to safeguard biodiversity

Component variables are measured on a 5-point scale, (1=Strongly disagree; 2=Disagree; 3=disagree; 4=Agree; 5=Strongly agree)

Table 10. Probit regression model results

Variable group	Variable name	Coefficients	SE	P value	Dy/dx
Marketing variables	Bid price	-0.425**	0.178	0.017	-0.032
	Price sensitive	-2.719***	1.058	0.010	-0.205
	Age	0.014 ^{ns}	0.031	0.630	0.001
Individual variables	Education	0.472**	0.204	0.021	0.035
	Gender	1.959*	1.059	0.065	0.148
	Income	0.105**	0.050	0.038	0.008
	Family size	0.186 ^{ns}	0.238	0.437	0.014
Social variables	Import products	-0.660 ^{ns}	0.843	0.433	-0.049
	Awareness of OCOP	-0.611 ^{ns}	0.815	0.453	-0.046
	Environmental consciousness	6.206**	2.461	0.012	0.468

Cons	-16.057**	7.894	0.042
Log-likelihood	-13.664475		
Pseudo R²	0.7970		
LR χ^2	107.27		
Prob > χ^2	0.0000		

Note: (*) significant variable at 10% level, (**) significant variable at 5% level, (***) significant variable at 1% level; ns is not meaningful. S.E is the standard error.

Source: survey results in 2021, n=100

The correlation matrix indicates the absence of multicollinearity in the regression model. The Pseudo coefficient R2 (McFadden's R2) is 0.7970, significantly exceeding 0.4, which indicates that the independent variables in the model have strong predictive ability. The model achieves a percentage correct prediction of 91%, demonstrating that the variables in the model explain approximately 91% of the variation in consumer willingness to pay.

The regression results in Table 10 reveal six statistically significant variables: bid price, price sensitivity, educational level, gender, income, and awareness of environmental protection. These findings align with previous studies conducted by Khoi and Ngan (2014); Do et al. (2015); Tu et al. (2021); Trang et al. (2023). Among these variables, two variables have a negative influence, while four variables have a positive effect. Male consumers with higher education and income exhibit a willingness to pay for OCOP beverage products due to their awareness of the societal benefits associated with the OCOP program. Additionally, as the products are primarily alcoholic beverages, women display lower willingness to pay, with a majority expressing a preference for goat milk products. The analysis also confirms that higher bid prices correspond to lower willingness to pay, which aligns with previous studies by Kontoleon and Yabe (2006); Khai and Yabe (2015); Khai and Phuong (2020); Tu et al. (2021).

Price-sensitive individuals are less inclined to pay for OCOP beverage products, which contradicts the findings of Trang et al. (2022). Since these products are not considered

essential commodities, the price elasticity is relatively big. Therefore, changes in price have a significant impact on consumption volume if the product lacks distinctive features. On the other hand, individuals who prioritize environmental concerns demonstrate a greater willingness to pay for OCOP beverages as they seek to contribute to environmental protection efforts.

Based on the analysis results presented in Table 10, we can estimate the average price that consumers are willing to pay for OCOP beverage products using the provided formula (*). The findings indicate that consumers are willing to pay a premium of 15.76% compared to the current price at which they are purchasing these products.

4.5 Solutions for developing OCOP beverage products

Based on the analysis of the value chain and factors influencing consumer willingness to pay, the study proposes the following solutions:

1. Strengthening partnerships with supermarkets and retailers: Production facilities should establish contracts and collaborations with supermarkets and retailers both within and outside the province to increase sales volume and added value. In the future, there should be a focus on exporting OCOP beverage products to other countries in the region.

2. Diversifying products, designs, and market segments: It is essential to offer a variety of products, designs, and market segments. The research findings indicate that higher-income consumers exhibit a greater

willingness to pay. Moreover, consumers tend to purchase imported products if they are priced similarly, as these products are perceived as prestigious and luxurious. Therefore, there should be products with eye-catching designs and high value to cater to the high-income segment.

3. Investing in technological innovation and ensuring food hygiene and safety: Processing establishments need to invest in technological advancements to enhance product quality and meet market demands. It is crucial to prioritize food hygiene and safety standards and comply with necessary regulations. By doing so, the processing facilities can expand their market and move towards exporting OCOP beverage products. Adhering to the necessary standards will also help elevate the ranking of OCOP beverages.

4. Targeted promotion and advertising: Propaganda and promotional efforts for OCOP drinks should primarily focus on men, as they tend to exhibit a higher willingness to pay. Clear and prominent labeling should highlight the origin, nutritional value, product story, and other relevant information to enhance consumer awareness and appreciation.

5. Government support and training: Local governments at all levels should implement supportive policies to attract investment and facilitate access to export markets by streamlining procedures and regulations. Local authorities should offer more training programs to farmers and processors on OCOP standards, ensuring they have a comprehensive understanding. Additionally, support should be provided to promote the development of the OCOP Hau Giang beverage brand.

CONCLUSIONS

Based on the research findings regarding the actors in the OCOP beverage value chain, it is evident that a significant portion of beverage products is sold directly to local consumers and tourists. However, sales through agents and supermarkets within and outside the province

account for a smaller proportion (approximately 20%) and lack contractual agreements. Consumers who purchase these products exhibit interest in factors such as nutritional value, design, food safety, and origin.

To achieve the desired added value, stimulate higher consumption levels, and explore export opportunities, policymakers and producers need to consider the factors that influence consumers' willingness to pay. These factors include bid price, price sensitivity, educational level, income, and environmental concerns.

In order to promote and enhance the beverage chain, policymakers should focus on the following solutions:

1. Trade promotion, channel expansion, and export: Efforts should be made to promote the distribution channels beyond the province, establish partnerships with agents and supermarkets, and facilitate exports. Building a strong brand presence is also crucial in attracting consumers and expanding the market.

2. Innovation in production and processing technology: Investments in research and development, as well as the adoption of innovative production and processing technologies, will contribute to improving product quality, enhancing efficiency, and meeting market demands.

By implementing these solutions, the OCOP beverage chain can be further developed and upgraded, leading to increased sales, improved value-added products, and greater opportunities for export. Policymakers should play an active role in facilitating these measures, fostering the industry growth, and ensuring the overall success of the OCOP beverage sector.

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