



The feasibility analysis of an industrial business project and The Willingness to Pay of Consumers for Cosmetic Products Made from Thai Herbal Plants for Facial Color Decoration

Numfon Senangkanikorn¹ and Wipawan Thongnium²

Abstract

This research aims to analyze the feasibility of an industrial business project and the consumers' Willingness to Pay (WTP) for herbal-based cosmetic products. The study focuses on consumers of community enterprise products across four regions of the country. The sample consists of 500 consumers, with data collected through interviews. The research results are divided into three parts: general demographic analysis, WTP value analysis, and business project feasibility analysis.

The findings indicate that factors influencing WTP include net income and education level, with individuals having higher income and education levels showing a greater willingness to pay for herbal-based cosmetic products. Women and older individuals tend to prefer safer and higher-quality products. Regarding marital status, married individuals place a greater emphasis on health safety. The business feasibility analysis suggests that an enterprise producing herbal-based facial cosmetic products requires a total investment of 980,000 Baht, with 60% being equity and 40% loan. Working capital amounts to 578,000 Baht, pre-operational costs are 260,000 Baht, and the Net Present Value (NPV) is positive at 1,120,000 Baht. The Internal Rate of Return (IRR) is 38.75%, and the Payback Period (PP) is 2 years, 11 months, and 28 days. Entrepreneurs entering this market have a strong opportunity for sustainable success due to the availability of local raw materials. The production technology is not complex, focusing on natural, chemical-free methods of production.

Keywords: Willingness to pay, Contingent Valuation Method, State Preference Method

Introduction

The cosmetic industry in Thailand has emerged as a significant economic contributor, exhibiting resilience and growth even amidst global challenges such as the COVID-19 pandemic. The industry is increasingly influenced by consumer preferences for products that are both natural and free from harmful chemicals. These trends reflect a growing awareness of health and environmental sustainability, motivating shifts in consumer behavior and market dynamics. Despite these positive trends, a critical gap remains in the local production of affordable, high-quality natural cosmetics. A significant proportion of natural and chemical-free cosmetic products available in the Thai market are imported, leading to high retail

¹ Rajamangala University of Technology Rattanakosin, numfon.sen@rmutr.ac.th, <https://orcid.org/0009-0009-8770-3705>

² Rajamangala University of Technology Rattanakosin, wiphawan.t@rmutr.ac.th



prices that make them inaccessible to many middle-income consumers. This scenario highlights the need for domestically produced alternatives that leverage local resources and indigenous knowledge. Thailand, rich in herbal plants and traditional wisdom, possesses the potential to innovate in the cosmetic sector by integrating natural ingredients into product formulations. Herbal-based facial cosmetics, such as those derived from turmeric, butterfly pea, and malabar spinach, offer promising avenues for creating products that meet safety, quality, and affordability criteria.

This study focuses on assessing the feasibility of industrial-scale production of herbal-based cosmetic products for facial color decoration. It also evaluates consumer willingness to pay (WTP) for these products, exploring factors such as income, education, and demographics. (Carlos et al., 2007) By analyzing market demand and economic viability, this research aims to bridge the gap between consumer needs and local production capabilities, fostering sustainability and competitiveness in Thailand's cosmetic industry.

Research Objective

1. To analyze consumer WTP for herbal-based facial cosmetics.
2. To evaluate factors promoting sustainable investment in herbal cosmetic industries.
3. To assess consumer satisfaction with herbal-based products.

Literature Review

This research builds on existing studies and theories to establish a comprehensive understanding of the market and feasibility of herbal-based cosmetic products. The Willingness to Pay (WTP) theory provides a foundation for analyzing consumer behavior, focusing on factors that influence their purchasing decisions, such as income, education, and demographic attributes. (Senangkanikorn N. et al., 2021) Previous research highlights that consumers often prefer natural and chemical-free products due to concerns over safety and environmental impact. The Contingent Valuation Method (CVM) has been widely employed in similar studies to measure consumer WTP in hypothetical scenarios. This method facilitates the estimation of economic value for non-market goods, such as eco-friendly or natural products. Market feasibility studies further explore the demand, competitive landscape, and potential growth, providing a quantitative basis for investment decisions.

Relevant literature also underscores the significance of localized



production and resource utilization. Studies by Darby et al. (2006) and Gil et al. (2000) demonstrate that consumer trust and preference for locally sourced products can enhance market acceptance and willingness to pay. Additionally, innovations in natural cosmetics, as highlighted by Gunduz and Bayramoglu (2011), suggest that the use of herbal ingredients like turmeric, butterfly pea, and malabar spinach aligns with global trends towards sustainable and ethical consumption.

Finally, economic feasibility is evaluated through financial metrics such as Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP). These tools offer insights into the profitability and sustainability of potential projects. By integrating these frameworks, this research aims to contribute to the development of a sustainable business model for herbal-based cosmetics, addressing both market demands and economic viability.

Research Methodology

This research employs a mixed-method approach to comprehensively analyze the feasibility of an industrial business project and consumer willingness to pay (WTP) for herbal-based cosmetic products. A stratified sampling method was used to ensure representation across four regions of Thailand: Northern, Central, Northeastern, and Southern, with a total sample size of 500 respondents. The Contingent Valuation Method (CVM) was selected for measuring WTP, as it effectively captures the economic value of non-market goods through hypothetical scenarios. (Senangkanikorn N. et al., 2020) Financial metrics such as Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP) were employed to assess the economic feasibility of the proposed business model. Data collection involved direct interviews conducted at supermarkets and hypermarkets, targeting consumers who purchase community enterprise products. The research instruments included structured questionnaires that were pre-tested for validity and reliability, covering demographic profiles, consumer preferences, and WTP levels.

The analysis was performed using descriptive and inferential statistical methods to identify patterns and relationships. Key indicators, such as income, education, and marital status, were evaluated for their impact on WTP. (Senangkanikorn N. et al., 2024) Additionally, sensitivity analysis was conducted to examine the robustness of financial projections under varying market conditions. (Liu, Y., Zeng, Y., & Yu, X., 2009) This methodology provides a systematic framework for understanding consumer



behavior and evaluating the economic potential of herbal-based cosmetic products, aligning with the study's objective to bridge the gap between market demand and sustainable production practices.

Research Instrument

The research instruments employed in this study were structured questionnaires, designed to gather comprehensive data on demographics, consumer preferences, and willingness to pay (WTP) for herbal-based cosmetic products. The questionnaires were developed based on a thorough review of relevant literature and consultations with experts in marketing and feasibility analysis to ensure content validity.

To enhance reliability, the questionnaire was divided into three sections:

1. Demographic Information: This section collected data on participants' age, gender, education, income, and marital status.

2. Consumer Preferences: Questions focused on the participants' purchasing habits, product preferences, and attitudes toward natural and herbal-based cosmetics. (Lockie et al., 2004)

3. Willingness to Pay (WTP): This section employed the Contingent Valuation Method (CVM) to measure the participants' maximum willingness to pay for herbal-based cosmetic products. (Gil et al., 2000)

The questionnaires were tested in a pilot study with 30 respondents to identify ambiguities and improve clarity. The feedback was used to refine the questions, ensuring they were understandable and aligned with the research objectives.

The instruments were administered during face-to-face interviews at supermarkets and hypermarkets across four regions: Northern, Central, Northeastern, and Southern Thailand. This approach ensured the accurate capture of responses and allowed for clarifications if needed. The finalized tools demonstrated high reliability, as evidenced by their Cronbach's alpha score of 0.85, indicating strong internal consistency. These instruments enabled the systematic collection of data necessary for evaluating the feasibility of the business project and analyzing consumer behavior related to herbal-based facial cosmetics.



Results

The results of this study are presented in three key sections: demographic analysis, consumer willingness to pay (WTP) analysis, and business feasibility evaluation.

1. Demographic Analysis

The sample consisted of 500 participants distributed across four regions of Thailand: Northern (20%), Central (40%), Northeastern (25%), and Southern (15%). In this study, the sample size was determined using the formula proposed by Yamane (1973). The majority of respondents were female (68%), aged 25-45 years (55%), with a monthly income ranging from 15,000 to 50,000 Baht. Education levels were predominantly at the bachelor's degree level (48%). Married respondents accounted for 60% of the sample, and they demonstrated a higher preference for safe and chemical-free cosmetic products.

2. Consumer Willingness to Pay (WTP) Analysis

The findings revealed that higher WTP was significantly associated with greater income and education levels. Respondents in urban areas expressed more interest in natural and herbal-based cosmetics compared to those in rural areas. (Gunduz, O., & Bayramoglu, Z., 2011) Female respondents and individuals over the age of 35 exhibited a strong preference for safety and product quality. Married participants prioritized health safety, with 75% indicating a willingness to pay a premium of 15-20% for herbal-based facial cosmetics compared to synthetic alternatives.

3. Business Feasibility Evaluation

The feasibility analysis highlighted the economic potential of establishing an herbal-based cosmetics business. The required initial investment was calculated at 980,000 Baht, with a funding structure comprising 60% equity and 40% loans. The financial analysis revealed a positive Net Present Value (NPV) of 1,120,000 Baht, an Internal Rate of Return (IRR) of 38.75%, and a payback period of approximately 2 years and 11 months. These results suggest strong profitability and minimal financial risk.

Overall, the study demonstrates significant market demand for herbal-based cosmetics and supports the feasibility of establishing a sustainable business model leveraging local resources and natural production methods. These findings contribute to the broader understanding of consumer



behavior and the economic viability of herbal cosmetic products in Thailand.

Discussion and Conclusion

The study underscores the growing demand for natural and herbal-based cosmetic products in Thailand, driven by increasing consumer awareness of health and environmental sustainability. The findings reveal that higher education and income levels significantly influence consumers' willingness to pay (WTP) for such products. (Darby et al., 2006) Married individuals and older consumers prioritize safety and quality, indicating a preference for chemical-free alternatives.

The feasibility analysis demonstrates that herbal-based cosmetics present a viable business opportunity. The positive financial metrics, including a favorable NPV, high IRR, and short payback period, affirm the economic sustainability of the proposed business model. Local resource availability and simple production technology further enhance the project's potential for success.

In conclusion, the research highlights the alignment between consumer preferences and sustainable business practices. The study provides a foundation for entrepreneurs and policymakers to promote local, eco-friendly cosmetics. Future studies could explore expanding product lines and marketing strategies to penetrate broader markets effectively.

Acknowledgement

This work was supported by Rajamangala University of Technology Rattanakosin, Thailand Science Research and Innovation (TSRI), and National Science, Research and Innovation Fund (NSRF). Project Code FRB6642/2566

Reference

- Carlos P., Villalobos, P., Spiller, A., & Henry, G., (2007). Consumer Preference and Willingness to Pay for an Officially Certified Quality Label. Implications for Traditional Food Producers. *Agricultura Tecnica*. 67: 300-308
- Darby, K., Batte, M.T., Ernst, S.C., & Roe, B.E., (2006). Willingness to Pay for Locally Produced Foods: A Customer Intercept Study of Direct Market and Grocery Store Shoppers. CA: The American Agricultural Economics Association.



- Gil, J.M., Gracia, A., & Sanchez, M., (2000). Market Segmentation and Willingness to Pay for Organic Products in Spain. *International Food and Agribusiness Management Review*. 3: 207-226.
- Gunduz, O., & Bayramoglu, Z., (2011). Consumer's Willingness to Pay for Organic Chicken Meat in Samsun Province of Turkey. *Journal of Animal and Veterinary Advances*, 10: 334-340.
- Liu, Y., Zeng, Y., Yu, X., (2009). Customer Willingness to Pay for Food Safety in Beijing: A Case Study of Food Additives. Contributed Paper Prepared for Presentation at the International Association of Agricultural Economist Conference.
- Lockie S., Lyons K., Lawrence G., & Grice J., (2004). Choosing Organics: a Path Analysis of Factors Underlying the Selection of Organic Food among Australian Customers. *Appetite*, 43: 135-146.
- Senangkanikorn N., Khumlaitong, N., Thongnium, W., & Ingadapa, N. (2020). Application of the Kano Model to Select Logistics Partner in Thailand. *International Journal of Management and Applied Science*, 6(2). Retrieved from <http://iraj.in>.
- Senangkanikorn Numfon, Khumlaitong Naranchala, & Ingadapa N., (2024). The Development of An Application Supporting The Re-Entering of The Elderly Labors To Expand The Base of Economic Value. *Migration Letters*. Volume: 21, No: S4 (2024), pp. 1767-1774.
- Senangkanikorn N., Khumlaitong & N., Thongnium(2021). The Guidelines for Return to Labour Market and Occupation of Elder in Nakhonpathom Province, Ratchaburi Province and Kanchanaburi Province. *Rajamangala Manufacturing and Management Technology Conference (RMTC 2021)*.
- Yamane, T. (1973). *Statistics: An Introductory Analysis*. 3rd ed. New York: Harper & Row.