

# Socioeconomic Determinants of Profitability in Snail Marketing: A Gender-Based Perspective in Delta State

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## Abstract

This study examines profitability dynamics in snail marketing, emphasizing the factors that shape success within the industry. Key variables influencing profitability include education, marketing experience, quantity sold, selling price, and gender-income interactions, with notable gender differences highlighted by t-test analysis. Results reveal that female marketers not only participate actively but achieve higher profits than male counterparts, suggesting that targeted gender-specific interventions could amplify their success and promote equity in the agricultural sector. Market awareness and channel utilization play crucial roles, with 42.5% of respondents recognizing snail market potential and 40.4% primarily selling in local markets. Additionally, 45% of marketer's source snails from farms, underscoring the need to strengthen local markets and supply chains to enhance profitability and sustainability in snail marketing. These insights offer a foundation for targeted strategies to support and expand this promising niche within rural economies.

**Keywords:** Snail Marketing, Profitability Determinants, Gender-Based Analysis, Cultural Norms, Economic Conditions

## 1. Introduction

Snails are small shelled creatures known for their slow movement and herbivorous diet, particularly in garden settings (Ekunwe & Enato, 2016). In Nigeria, the West African giant snail (*Archachatina marginata*) stands out as the most widely consumed and marketed species (Justin et al., 2021). Recently, heliciculture (snail farming) has experienced significant growth, both in production volume and operational scale (Egbodion & Igbinudu, 2023). While agriculture is intended to be the driving force behind Nigeria's food security, achieving comprehensive food and nutritional security requires agricultural diversification, with heliciculture emerging as a viable alternative to traditional livestock farming.

The demand for snail meat in Nigeria continues to rise, regardless of marketing challenges and costs. This popularity stems from various applications, including traditional medicine, particularly in Yoruba culture, treatment of umbilical cord wounds, and the utilization of snail mucus (Ogogo et al., 2011). The medicinal properties of snails have been recognized historically, with applications in treating burns, abscesses, skin conditions, wounds, and smallpox (Ahmadu & Ojogho, 2012). Globally, the top ten importers of processed snails represent 91% of the world's import value (\$69.8M). France leads this market, with imports valued at 38.23M USD in 2021, significantly outpacing Romania, the second-largest importer (Bord Bia, 2022). This high demand has stimulated increased snail production and consumption, fostering a value chain that involves both male and female participants.

Agricultural marketing encompasses all activities that facilitate the flow of goods and services from farmers to consumers (Oyibo et al., 2023). In the snail market, women are the primary traders,



though men and women experience the market differently (Mohammed & Abdulquadri, 2012). The international market for snails has grown substantially, with Europe being a major import destination (Okonta et al., 2021). While snail production and marketing in Nigeria show promise, religious and societal beliefs continue to limit its reach in certain areas (Okonta et al., 2021). The snail market continues to expand as it helps address the gap between protein requirements and consumption patterns among populations. Gender over the years has played an important role in the agricultural sector where both men and women engaged in the marketing of agricultural produce (Adam et al, 2018). Women are more involved in the marketing of agricultural produce than the men. It is not far fetch, the reason being that men carry out the tedious tasks of clearing and felling trees, making ridges, etc. Masamha et al. (2019) stated that in Africa, gender plays a huge role in agricultural production and marketing. According to Anderson (2015), gender participation in marketing agricultural produce is a means of reducing household income poverty. However, the benefits of participating in snail marketing for gender analysis are perceived to be their control of productive resources and household-level decisions.

Gender analysis provides insights into how socially constructed roles and responsibilities influence agricultural decision-making across production, processing, and marketing activities (Akanle & Adebayo, 2016). As a socio-economic variable, gender can be used to analyze the roles, responsibilities, opportunities, and constraints that affect men and women across various racial, religious, and ecological boundaries (Akanle et al., 2019). Research on market participation among date producers in Ethiopia's Afar Region by Asfaw et al. (2022) identified four significant factors influencing market participation: education, off-farm employment, livestock ownership, and access to credit. Using the Probit model in the first step of the Double hurdle model equation, they found that each additional year of education increased market participation probability by 0.19 percentage points, all other variables held constant. This finding aligned with previous studies by Adefemi et al. (2019); Gbigbi & Taiwo (2014); Gbigbi (2018); Okonta et al. (2021), which all demonstrated the positive impact of household head education levels.

Okwuokenye et al. (2022) conducted a study on giant snail (*Achatina achatina*) production in North Central Nigeria, examining challenges and prospects. Their research involved 64 respondents across 8 local government areas in 6 communities, selected purposively based on the presence of snail farmers. The study revealed average demographics including age of 43.59 years, household size of 6 persons, stock size of 787 snails, 6.69 years of farming experience, and income of N350,000.50. The majority (76.56%) of farmers used constructed pens for snail housing, though overall production levels remained low. Financial analysis showed an average profit of N80 per marketable snail, indicating the business's profitability. However, several constraints were identified, including slow growth rates, theft, pest and disease problems, lack of management skills, high mortality rates, and insufficient funding. The study found that demographic characteristics such as age, education, household size, and farm income were significant factors ( $p < 0.05$ ) influencing production levels, along with stock size and farming experience. Based on these findings, the researchers recommended using improved, fast-growing, early-maturing snail breeds for production. The research aims to understand gender participation in snail marketing, focusing on benefits and participation factors for both men and women.

The specific objectives of this study are to determine the effects of socioeconomic characteristics of the snail market on profitability by gender, compare the profitability of snail marketing by gender, identify the snail market value chain, investigate the sources of snails for marketing, and ascertain the marketing channels of snails. The hypothesis of the study tested the following null hypothesis: There are no significant differences in the profitability of snail marketing by gender ( $H_0$ ).

## 2. Methods

The study was carried in Delta State. It lies roughly between lat. 5°00' and 6°30' North and Long. 5°00' and 6°45' East of the equator. The annual rainfall in the coastal areas is about 226.5cm and 190cm in the Northern fringes of the state, while the temperature is 20°C and 30°C. The state has natural vegetation ranging from the mangrove swamps along the coast to the ever-green forest in the freshwater forest belt. Farming hunting of animals, fishing and trading are the predominant economic activities of the people and with rich arable crop farming accounting about 80% of agricultural activities (Delta State Ministry of Economic Planning, 2008). The study covered 6 local government areas of Delta State. Firstly, 4 communities per LGA was randomly selected. Finally, ten (10) snail marketers were randomly selected the selected communities totally of 240 marketers. This is chosen because the sample of gender distribution in the population was reflected, thus making the analysis more representative. 168 female respondents were randomly selected from the communities representing 70% of the sample size. This is based on the assumption that there are sufficient number of female who participate in marketing commodities than the male counterpart. While 72 male respondents were selected randomly representing 30% of the sample size. Primary data were used for this study. The data were collected semi- structured questionnaire. Descriptive and inferential statistics were used to analyze the data collected such as frequency, percentages, mean, mode and multiple regression.

### 2.1. Model Specifications

#### 2.1.1. Cost and Return Analysis

a) Cost Equation

$$TC = TVC + TFC \dots \dots \dots (1)$$

$$= \sum P_i X_i + TFC \dots \dots \dots (2)$$

Where, TC = Total cost

TVC = Total variable cost

TFC = Total fixed cost

$P_i$  = Unit price of the  $i$ th input used

$X_i$  = Quantity of the  $i$ th input used

b) Revenue Equation

$$TR = P * Q \dots \dots \dots (3)$$

Where, TR = Total revenue

P = Unit price of snail

Q = Quantity of snail traded

c) Gross Margin Equation

$$GM = TR - TC \dots \dots \dots (4)$$

Where, GM = Gross margin

TR = Total revenue

TVC = Total variable cost

d) Net Return on Investment

$$\text{ROI} = \text{TR}/\text{TC} \dots\dots\dots (5)$$

Where, TR = Total revenue

TC = Total cost

$$\text{Rate of return on investment} = \frac{\text{total revenue}}{\text{total cost}} \times \frac{100}{1}$$

### 2.1.2. Multiple Regression Function

Factors influencing the profitability of gender participation in snail marketing. The implicit form of the multiple regression model form

$$Y = f(x_1, x_2, \dots \dots x_n) + e \quad \dots \dots (6)$$

The explicit form of the linear functions takes the form;

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \beta_7x_7 + e \dots \dots (7)$$

where;

Y=profitability

$x_1$  = gender

$x_2$  = education level

$x_3$  = income status(N)

$x_4$  = marketing experience (years)

$x_5$  = quantity of snails sold (numbers)

$x_6$  = selling price(N)

$x_7$  = gender\_income\_interaction

e = stochastic error term

$\beta_0$  = intercept term

$\beta_1 - \beta_{13}$  = regression coefficients

## 3. Results and Discussion

### 3.1.1. Determinants of Profitability of Snail Marketing by Gender

The R-square value (0.770) indicates that 77% of the variance in snail marketing profitability is explained by the model. The adjusted R-square (0.878) suggests a high level of explanatory power when considering the number of predictors. The F-ratio (110.092) is statistically significant, indicating that the overall model is a good fit for the data. The intercept of the model is 178,116.286, indicating the baseline level of snail marketing profitability when all other variables are zero. This value is statistically significant ( $p = .021$ ).

### 3.1.2. Educational level

Education stands as a critical determinant of success across various economic sectors, and its impact on agricultural marketing, particularly in the realm of snail marketing, is profound. Statistical analysis reveals a robust relationship between educational level and snail marketing profitability, evidenced by a coefficient of 50,941.511 with significant statistical significance ( $p = .008$ ). This finding indicates that higher educational levels among snail marketers are associated with markedly improved marketing outcomes, highlighting a compelling link between educational attainment and profitability in this specialized market. This is in agreement with Gbigbi & Taiwo (2014) that fishermen with higher level of education are likely to be less inefficient because they have higher tendency to pay attention to effective management of their fishing activities. Similarly agrees with Gbigbi (2018) findings that the education of the entrepreneur had a positive significant influence on the income of the firm.

Educational attainment enhances marketing skills by equipping individuals with specialized knowledge in marketing strategies, market analysis, and consumer behavior. Marketers with higher educational backgrounds can adeptly identify market trends, understand consumer preferences, and develop tailored promotional strategies to effectively target their audience in the competitive snail market. Moreover, educated marketers demonstrate greater adaptability to technological advancements and shifting market dynamics. They are more inclined to innovate in sales approaches, optimize distribution channels, and manage customer relationships effectively, thereby gaining a strategic advantage in snail marketing.

Education also fosters critical thinking and analytical reasoning, enabling marketers to make informed decisions regarding pricing strategies, promotional campaigns, and market expansion initiatives. This capability minimizes risks and maximizes returns on investment in snail marketing endeavors, contributing significantly to overall profitability and market sustainability. Socioeconomically, a well-educated workforce in snail marketing enhances economic growth by boosting productivity, fostering market competitiveness, and attracting investments. Educational attainment among snail marketers promotes a resilient market sector capable of adapting to global market trends and customer demands, ensuring long-term viability and profitability. Furthermore, education serves as a catalyst for socioeconomic empowerment within communities engaged in snail marketing. It expands income-generating opportunities, improves livelihoods, and supports community development through sustainable business practices. Educated snail marketers are better positioned to achieve higher incomes, elevate living standards, and contribute meaningfully to local economic development and social well-being.

### **3.1.3. Marketing Experience**

Marketing experience plays a pivotal role in determining success within the niche market of snail marketing. Statistical analysis underscores the significance of marketing experience, revealing a notable correlation with snail marketing success. The regression analysis shows a coefficient of 5,572.627 with significant statistical significance ( $p = .004$ ), indicating that seasoned marketers within the snail industry are more likely to achieve higher levels of success. This finding highlights the critical importance of accumulated experience in navigating the complexities of this specialized market. This agrees with Gbigbi & Chuks-Okonta (2020) that marketers with more years of experience tend to earn more profit in feed marketing than marketers with less years of experience. The findings are also in consonance with that of Gbigbi (2018).

Experienced marketers benefit from refined marketing skills honed over time. They develop a nuanced understanding of market dynamics, consumer behavior, and effective marketing strategies tailored to the unique challenges of the snail industry. These skills enable them to identify emerging market trends, anticipate customer preferences, and adeptly adjust promotional tactics to resonate effectively with target audiences. Furthermore, marketing experience facilitates the cultivation of robust networks among stakeholders such as suppliers, distributors, and loyal customers. These relationships bolster business operations, enhance market penetration, and foster strategic collaborations that strengthen overall market competitiveness. In terms of decision-making, seasoned marketers bring a wealth of practical knowledge and insights into risk management strategies, pricing dynamics, and resource allocation. This expertise empowers them to make informed decisions that mitigate risks, optimize resource utilization, and maximize profitability in snail marketing ventures. Socioeconomically, experienced marketers play a crucial role in enhancing the competitiveness of the snail market. They drive innovation, set industry benchmarks, and elevate the quality standards of products and services, fostering healthy market competition and stimulating continuous improvement.

Moreover, their success generates employment opportunities within the snail industry and supports related sectors such as logistics, packaging, and market research. This economic activity contributes significantly to local economic development, income generation, and poverty alleviation within rural communities.

#### **3.1.4. Quantity of Snails Sold**

According to regression analysis, the number of snails sold exerts a significant impact on snail marketing profitability, with a coefficient of 1,327.229 and highly significant statistical significance ( $p = .000$ ). This empirical finding underscores the pivotal role of sales volume in driving profitability within the specialized market of snail marketing. Selling larger quantities of snails enables marketers to capitalize on economies of scale, where unit costs decrease as production volume increases. This cost efficiency not only bolsters profit margins but also empowers marketers to offer competitive pricing in the market, thereby enhancing their market competitiveness and attractiveness to consumers.

Moreover, increased sales volume directly translates into higher revenue generation for snail marketers. The financial influx from larger sales volumes provides essential resources for business expansion, investment in innovative marketing initiatives, and the enhancement of operational capabilities. This strategic allocation of resources supports sustained growth and scalability within the snail marketing sector. Furthermore, a higher quantity of snails sold elevates the market visibility and strengthens the market positioning of snail marketers. It signals market confidence, reliability, and customer trust, positioning marketers favorably to attract new buyers and cultivate long-term business relationships. This enhanced market presence not only drives current sales but also lays a foundation for sustained business growth and market leadership.

#### **3.1.5. Selling Price of Snails**

The selling price per unit is a critical determinant of profitability within the snail marketing sector. According to regression analysis, the selling price per unit exerts a substantial impact on snail marketing profitability, with a coefficient of 200.723 and highly significant statistical significance ( $p = .000$ ). This statistical finding underscores the direct correlation between variations in selling prices and overall profitability, emphasizing the pivotal role of pricing strategies in achieving financial success within the specialized market of snail marketing.

Higher selling prices contribute to enhanced profit margins for snail marketers by maximizing revenue per unit sold. This strategic pricing approach not only boosts immediate profitability but also supports sustainable financial performance and business growth over time. Furthermore, premium pricing positions snail products as high-value commodities in the eyes of consumers. It communicates attributes of quality, reliability, and exclusivity, thereby enhancing brand image and fostering customer loyalty. Consumers perceive higher-priced snail products as superior choices, reinforcing market positioning and enabling marketers to command premium prices that reflect the value offered. Strategic pricing also affords marketers a competitive advantage by differentiating their offerings in the marketplace. By aligning prices with perceived product quality or unique selling propositions, marketers can effectively carve out a distinct market niche, outperform competitors, and capture a loyal customer base. This strategic positioning not only enhances market share but also fortifies resilience against market fluctuations and competitive pressures.

#### **3.1.6. Gender\_Income\_Interaction**

A coefficient of 1.522 for the gender\_income\_interaction term suggests a positive interaction effect between gender and income status on snail marketing. This means that as income status changes, the impact of gender on snail marketing outcomes also changes. Specifically, the positive coefficient



indicates that higher income levels amplify the positive effect of being female on snail marketing outcomes. Conversely, lower income levels might diminish this positive effect. The statistical significance of this interaction term ( $p = .020$ ) further supports the reliability of this finding. A p-value below the conventional threshold of .05 suggests that the observed interaction effect is unlikely to be due to random chance, thus confirming the importance of considering the combined influence of gender and income status in snail marketing.

To fully grasp the implications of the gender\_income\_interaction, it is essential to understand how gender and income status individually affect snail marketing outcomes: The gender variable alone has a coefficient of 58133.546, indicating that women tend to have higher snail marketing outcomes than men. However, this effect is not statistically significant ( $p = .122$ ), suggesting that gender by itself is not a decisive factor. The income status variable has a very small and statistically insignificant coefficient (.055,  $p = .771$ ), indicating that income status alone does not have a substantial direct effect on snail marketing outcomes. When these two variables are considered together through the interaction term, the positive coefficient of 1.522 reveals that the effect of gender on snail marketing is moderated by income status. Specifically, as income increases, the positive impact of being female on marketing outcomes becomes more pronounced.

**Table 1. Determinants of Snail Marketing by Gender**

Variable	Coefficient	Std. Error	t-test	p-value
(Constant)	178116.286	76398.620	2.331	.021
Gender	58133.546	37490.895	1.551	.122
Educational level	50941.511	18985.742	2.683	.008**
income status	.055	.189	.291	.771
Marketing experience	5572.627	1941.486	2.870	.004**
quantity sold	1327.229	136.479	9.725	.000***
selling price	200.723	7.850	25.570	.000***
gender_income_interaction	1.522	.651	-2.339	.020***
R-square	.770			
Adjusted R Square	.878			
F-ratio	110.092			

Source: Field survey, 2024; \*\*\*, \*\* significant at 1% and 5% respectively

### 3.1.7. Cost and Return of Snail Marketing by Gender

Snail marketing stands as a pivotal segment within agriculture, where understanding cost dynamics is paramount for driving profitability. Analyzing the breakdown of costs in snail marketing reveals significant differences between genders. Females allocate N41,675.30 towards feeding, exceeding males' expenditure of N35,523.33. This divergence suggests potential variations in sourcing strategies or nutritional approaches, influencing overall expenses and highlighting opportunities for enhancing cost-efficiency through improved procurement and feed management practices among female marketers. Housing costs, essential for preserving snail quality during transport and display, show a slight variance with females investing N3,461.54 compared to males' N3,367.32. This similarity underscores a shared commitment across genders to ensuring optimal product presentation and consumer appeal, indicating efficient resource allocation practices critical in the competitive snail marketing environment. Labour costs demonstrate a notable disparity, with females investing N4,247.23 versus males' N3,986.02. This variation may stem from differences in staffing strategies or wage structures, emphasizing the importance of streamlined labour management to enhance productivity and reduce operational overheads uniformly across gender lines.

Notably, females allocate a substantial sum to veterinary care, investing N11,888.20 compared to males' N5,595.54. This strategic emphasis on health management positions female marketers

advantageously in maintaining superior product quality and customer satisfaction, potentially influencing consumer preferences and fostering repeat business engagements. Both genders exhibit efficiency in managing costs related to pest control, utilities, and equipment, reflecting prudent resource allocation practices crucial for sustaining operations and maximizing profitability in the competitive snail market. Effective pest management strategies and streamlined utility usage underscore a shared commitment to operational efficiency and cost-effectiveness across diverse marketing operations.

Despite potentially higher transportation costs for females at N12,638.69 compared to males' N16,558.93, their strategic market presence enables them to sell 190.77 snails at an average price of N2,320.71 per snail. This higher sales volume translates into total revenues of 435,711.90 N for females, whereas males, selling 123.68 snails at a higher average price of 2,381.84 N per snail, achieve revenues totaling N308,222.68. The difference in sales volume and revenue generation culminates in higher profitability for females, yielding a profit of N320,610.60 with a robust Return on Investment (ROI) of 279%, compared to males' profit of N217,889.46 and an ROI of 241%. The Return on Investment (ROI) metrics underscore the financial effectiveness and efficiency of snail marketing endeavours for both genders. Achieving a high ROI of 279% indicates that for everyone invested in snail marketing, females earn 2.79 profit. This reflects effective cost management, strategic market positioning, and efficient resource allocation, which are crucial in sustaining profitability and fostering growth in the competitive market. With a respectable ROI of 241%, males also demonstrate profitability in their marketing efforts. This metric suggests that while males may have higher average selling prices per snail, females' higher sales volumes contribute significantly to their overall profitability and ROI superiority.

**Table 2. Cost and Return of Snail Marketing by Gender**

Cost items	Mean Profit of female (N)	Mean Profit of male (N)
Feeding	41675.30	35523.33
Housing	3461.54	3367.32
Labour	4247.23	3986.02
veterinary care	11888.20	5595.54
pest management	1209.64	1155.42
Transportation	12638.69	16558.93
loading & offloading	6137.35	6453.61
market levy	27093.45	11713.15
rent/lease	483.64	500.93
Equipment	4617.14	3811.43
equipment maintenance	970.37	900.00
Utilities	1620.96	1666.87
Total cost	115101.31	90333.22
snails sold	190.77	123.68
selling price	2320.71	2381.84
Total Revenue	435711.90	308222.68
Profit	320610.60	217889.46
Return on investment (ROI)	279%	241%

### 3.1.8. T-test on Profitability of snail marketing by gender

To statistically analyze the difference in profitability between male and female snail marketers, a t-test can be conducted. This test helps determine if the observed differences in mean profits are statistically significant by comparing the means and standard deviations of the two groups and evaluating the significance of the difference between them. The result shows that the mean profit for male snail marketers is N 211,477.90 with a standard deviation of N742,988.03, while the mean profit for female snail marketers is N451,160.56 with a standard deviation of N396,988.37. The t-test results reveal



a mean difference of -N239,682.65, a t-value of -2.505, 239 degrees of freedom (df), and a significance (Sig.) value of 0.000.

The interpretation of these results is clear: the negative mean difference of -N239,682.65 indicates that, on average, female snail marketers earn significantly more profit than their male counterparts. The t-value of -2.505 suggests that the difference in means is substantial relative to the variability within each group. The degree of freedom for the t-test is 239, reflecting the sample size of both groups. The significance value, also known as the p-value, is 0.000, which is well below the common alpha level of 0.05, indicating that the observed difference in profitability between male and female snail marketers is statistically significant.

The results of the t-test confirm that female snail marketers are significantly more profitable than male snail marketers. This significant difference could be attributed to several factors: First, female marketers might operate on a larger scale, leading to higher sales volumes and revenues. Second, higher costs in feeding and veterinary care for females suggest an investment in quality, which likely translates to healthier snails and better market prices. Third, female marketers may adopt more effective market strategies, including better negotiation of market levies and other operational expenses. Lastly, despite higher overall costs, the efficient management of those costs by female marketers results in higher profitability.

These findings highlight the potential benefits of adopting some of the practices used by female marketers to enhance profitability for male marketers. Policymakers and support organizations should consider providing targeted assistance, such as subsidies for feed and veterinary care or training in market strategies, to help male marketers improve their profitability. Encouraging practices that enhance quality and scale could lead to more equitable and profitable outcomes in the snail marketing industry.

In a nutshell, the t-test analysis clearly demonstrates a significant difference in profitability between male and female snail marketers, with females earning substantially higher profits. This insight provides a strong case for strategic interventions aimed at improving the profitability of male snail marketers through scale expansion, cost optimization, and better market practices.

**Table 3. T-test on Profitability of snail marketing by gender**

Variable	Mean	Std. deviation	Mean diff.	t	df	Sig.
profit of male snail marketers	211477.90	742988.03	-239682.65	-2.505	239	0.000
profit of female snail marketers	451160.56	396988.37				

### 3.1.9. Snail Market Value Chain

#### a) Aware of Potential Market for Snail

The result on awareness of the potential market for snails shows that 42.5% of the population is very aware, 37.1% is somewhat aware, and 20.4% is not aware. This high level of awareness among 42.5% of the population suggests a strong potential for marketing and selling snail products, as these individuals are likely to be receptive to purchasing. Companies can capitalize on this by promoting a variety of snail-based products, including snail meat, snail slime cosmetics, and health supplements. This segment of the market already understands the benefits and potential uses of snail products, making them an ideal target for innovative and high-quality offerings. By highlighting unique selling points and providing value-added features, companies can strengthen their brand loyalty and increase sales within this group.

The 37.1% who are somewhat aware present a substantial opportunity for further education and engagement through targeted marketing campaigns. This group is partially informed about the market but may lack comprehensive knowledge about the benefits and applications of snail products.

Businesses can focus on bridging this knowledge gap by providing educational content, such as informative articles, videos, and testimonials, that emphasize the health, beauty, and culinary advantages of snail-based products. By converting this somewhat aware segment into highly aware consumers, companies can significantly expand their market reach and drive higher conversion rates. Moreover, creating engaging and interactive experiences, such as cooking demonstrations, beauty workshops, and product sampling events, can help foster a deeper connection with this audience and encourage them to explore and purchase snail products.

Meanwhile, the 20.4% who are not aware of the potential market for snails represent both a challenge and an opportunity for growth. This segment requires intensive educational initiatives and awareness campaigns to introduce them to the benefits and uses of snail products. Companies can employ various strategies to reach this group, including leveraging social media platforms, collaborating with influencers, and conducting community outreach programs. Creating compelling and relatable content that resonates with the interests and needs of this audience can help capture their attention and pique their curiosity. Additionally, partnerships with health and wellness experts, chefs, and beauty professionals can lend credibility and authority to the messaging, making it more likely to influence and convert this segment.

Understanding the varying levels of awareness across the population allows companies to strategically target each group. For the highly aware, the emphasis should be on maintaining interest through innovation, quality, and differentiation. For the somewhat aware, education and engagement are key to deepening their understanding and driving purchases. For the unaware, awareness-building and introductory efforts are essential to bring them into the market. By addressing the unique characteristics and needs of each segment, companies can effectively penetrate and expand the market for snail products, driving growth and establishing a strong presence in this emerging industry.

**Table 4. Aware of the potential market for snail**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very aware	102	42.5	42.5	42.5
	somewhat aware	89	37.1	37.1	79.6
	not aware	49	20.4	20.4	100.0
<b>Total</b>		240	100.0	100.0	

#### b) How do you source your snails for marketing?

The result on how snails are sourced for marketing provides a detailed overview of the various methods employed by producers. The largest portion of respondents, 108 out of 240 (45.0%), source their snails from snail farms. This high percentage reflects the growing trend towards controlled and sustainable snail farming. Snail farms offer numerous advantages, such as consistent supply, controlled breeding conditions, and adherence to quality standards. Farming snails allows producers to monitor the health and diet of the snails, ensuring that the final product meets market expectations. Additionally, snail farming can be more environmentally sustainable than wild harvesting, as it does not deplete natural populations and can be managed to minimize ecological impact.

Wild harvesting, indicated by 46 respondents (19.2%), remains a significant method for sourcing snails. This traditional method involves collecting snails from their natural habitats, which can offer a unique appeal to certain market segments that value wild-caught products for their perceived natural and unadulterated qualities. However, wild harvesting poses challenges, including variability in supply, potential overharvesting, and ecological concerns. Sustainable wild harvesting practices are crucial to ensure that natural snail populations are not endangered and that their habitats are preserved for future generations. Purchasing snails from other suppliers is a method used by 43 respondents (17.9%). This

approach allows producers to focus on other aspects of their business, such as processing, marketing, and distribution, while relying on specialized suppliers for their snail stock. Purchasing from suppliers can provide flexibility and scalability, enabling producers to meet fluctuating demand without the need to invest heavily in farming infrastructure. However, it also requires careful selection of suppliers to ensure the quality and reliability of the snails provided. Establishing strong partnerships and rigorous quality control measures are essential to maintain product standards and consumer trust.

A combination of all the above methods is used by another 43 respondents (17.9%). This diversified approach allows producers to mitigate risks associated with relying on a single source and to capitalize on the strengths of each method. For instance, combining farming and wild harvesting can ensure a steady supply while offering the market a variety of product options. Similarly, supplementing own-farmed snails with purchases from suppliers can help producers manage peak demand periods and maintain product consistency. This hybrid strategy requires careful management to balance the benefits and challenges of each sourcing method.

Overall, the result highlights the varied strategies employed by snail producers to source their snails for marketing. Snail farming emerges as the most prevalent method, reflecting its advantages in terms of control, sustainability, and quality assurance. Wild harvesting, while less dominant, still plays a significant role, catering to niche markets and maintaining traditional practices. Purchasing from other suppliers offers flexibility and scalability, while a combination approach provides a balanced strategy to address the complexities of the market. Understanding these sourcing methods and their implications can help producers optimize their supply chains, meet market demands, and sustain their businesses in the long term.

The high reliance on snail farms underscores the importance of investing in sustainable and efficient farming practices. Innovations in snail farming technology and techniques can further enhance productivity and environmental sustainability. On the other hand, wild harvesting requires a focus on sustainable practices to prevent ecological damage and ensure the long-term availability of natural snail populations. Collaborating with conservation organizations and adhering to regulatory guidelines can support these efforts.

**Table 5. How do you source your snails for marketing**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid snail farms	108	45.0	45.0	45.0
wild harvesting	46	19.2	19.2	64.2
purchase from other suppliers	43	17.9	17.9	82.1
combination of all of the above	43	17.9	17.9	100.0
<b>Total</b>	240	100.0	100.0	

**c) Marketing channels of snail**

The result of marketing channels for snail products provides valuable insights into the current distribution landscape. Local markets are the most prevalent channel, with 97 out of 240 respondents (40.4%) indicating this as their primary means of distribution. This high percentage underscores the importance of local markets in reaching consumers who prefer fresh, locally sourced products. Local markets offer direct interaction between producers and consumers, allowing for personalized service and immediate feedback. This channel supports community-based economies and helps build strong local brand recognition and loyalty.

Online platforms, though less dominant, still represent a significant channel with 24 respondents (10%) indicating its use. The rise of e-commerce has opened new avenues for snail product distribution, offering convenience and accessibility to a broader audience. Online platforms enable producers to

reach customers beyond their immediate geographic area, including urban and international markets. The digital marketplace allows for targeted marketing, data analytics, and customer relationship management, enhancing sales and customer satisfaction. However, the relatively lower percentage suggests considerable potential for growth in this area, especially as more consumers become comfortable with online shopping for specialty food items.

Direct sales to restaurants account for 60 respondents (25%), indicating a substantial reliance on this channel. Selling directly to restaurants can be highly beneficial, often involving bulk orders and the possibility of long-term contracts. This channel helps build strong relationships with chefs and restaurant owners, who can become advocates for snail products by incorporating them into their menus and promoting them to patrons. The high quality and consistency required by restaurants can drive producers to maintain high standards, enhancing their overall market reputation.

Export markets are the least utilized channel, with only 3 respondents (1.3%) indicating their use. This low percentage suggests that while there is potential for international sales, it remains largely untapped. Exporting snail products can be challenging due to logistical issues, regulatory requirements, and the need to meet international quality standards. However, it also offers significant opportunities for growth and market diversification. Producers who successfully navigate these challenges can access larger markets, potentially leading to increased revenues and global brand recognition.

Farmers markets are a prominent channel, with 56 respondents (23.3%) using this method to sell their products. Farmers markets provide direct access to consumers and support local economies. They offer a unique environment where producers can engage with customers, educate them about their products, and build a loyal customer base. The social and community-oriented atmosphere of farmers' markets can enhance the shopping experience, making it an attractive option for consumers who value sustainability, transparency, and local sourcing.

**Table 6. Marketing channels of snail**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	local markets	97	40.4	40.4	40.4
	online platforms	24	10.0	10.0	50.4
	direct sales to restaurants	60	25.0	25.0	75.4
	export markets	3	1.3	1.3	76.7
	farmers markets	56	23.3	23.3	100.0
	<b>Total</b>	<b>240</b>	<b>100.0</b>	<b>100.0</b>	

#### 4. Conclusion

This study on profitability in snail marketing provides a comprehensive analysis of the intricate dynamics that influence the success and challenges faced by snail marketers. The findings underscore the importance of several key factors in determining profitability, including education, marketing experience, quantity sold, selling price, and gender-income interaction. These variables collectively contribute to the financial outcomes for marketers and highlight areas where targeted interventions can enhance profitability and sustainability in snail marketing. The significant difference in profitability between male and female snail marketers, as revealed by the t-test analysis, is a critical finding. Female marketers not only participated actively in snail marketing but also outperformed their male counterparts in terms of profitability. This suggests that while both genders are engaged in the industry, women can leverage their skills and resources more effectively to achieve higher profits. This outcome emphasizes the need for gender-specific support mechanisms that can further amplify the success of female marketers, thereby promoting gender equity in the agricultural sector.

Market awareness and the utilization of marketing channels are pivotal in understanding the landscape of snail marketing. A substantial proportion of respondents (42.5%) were aware of the market potential for snails, indicating a general recognition of the opportunities within this niche market. The local market emerged as the primary channel, utilized by 40.4% of marketers, while 45% sourced their snails from snail farms. These findings highlight the importance of local markets and farms in the supply chain, suggesting that strengthening these links could improve market efficiency and profitability.

Based on these findings, several recommendations are proposed. First, tailored training programs focusing on marketing skills, financial literacy, business management, and overcoming cultural and gender biases should be developed. These programs should address the specific needs of male and female snail marketers to enhance their capacities and promote gender equity. Second, equitable access to resources such as land, capital, and technology should be facilitated. Initiatives providing subsidies, grants, or loans specifically targeting women in snail farming can improve their access to finance and resources. Finally, partnerships between snail marketers and local market associations or cooperatives should be strengthened to improve market access. Supporting initiatives that reduce transportation costs and logistical challenges can enhance profitability and market reach.

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