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Saloni
Department of Agricultural Economics, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh, India

Dr. Mukesh Kumar Maurya
Department of Agricultural Economics, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh, India

An economic analysis marketing of tobacco & constraints related in Muzaffarpur district of Bihar

Saloni and Dr. Mukesh Kumar Maurya

Abstract
This research delves into a comprehensive analysis of the economic aspects surrounding tobacco cultivation and distribution in the region of Muzaffarpur, situated in the state of Bihar. The primary goals encompass an in-depth examination of the local currency's market dynamics, pricing structures, productivity levels, distribution networks, and the portion of earnings allocated to producers. The investigation collected valuable insights through individual interviews conducted with tobacco industry representatives, utilizing a meticulously devised questionnaire in line with the 2021-2022 planning program.

To evaluate the growth trajectory in terms of cultivated land area, production output, and productivity levels, an exponential analysis was employed. Pertinently, it's worth noting that the prevailing illiteracy rate within the region averages at 17.3%, indicative of the socio-economic context. In terms of agricultural practices, the average sown land area per farm varies significantly, registering figures of 0.52 hectares, 1.5 hectares, 3.25 hectares, and 1.75 hectares collectively.

Diving into the financial aspects, the study found that the average cost incurred for cultivating chewing tobacco (PT 76) amounted to Rs. 73,772.9 per hectare, while the resulting yield averaged at 21.7 quintals/ hec. Farmers received a unit price of Rs. 3,353.5 per ton for their produce. Notably, the surplus commercial stock of chewing tobacco (PT 76) ranged between 17.02 quintals to 18.99 quintals per farm, constituting a notable portion of 19.20% to 24.65% of the total production across farms of varying sizes.

In order to gather comprehensive data on the market landscape, this study adopted a multi-tiered sampling approach to engage with various market representatives. The study scrutinized three distinct marketing channels: producer-consumer, producer-rural trader/retailer-consumer, and producer-wholesale/consignment agent-retailer/rural trader-consumer. Interestingly, the average remuneration received by farmers varied depending on the scale of their farming operations.

As observed through the findings, the tobacco marketing scenario, particularly for chewing tobacco (PT 76), encounters significant challenges, with high labor wages accounting for 92% and substantial commission charges amounting to 84.55%. These factors emerge as prominent barriers in the marketing of chewing tobacco (PT 76), posing significant economic implications for the local industry.

Keywords: Production, marketing, cost of cultivation, price spread, marketing efficiency

Introduction

India possesses a rich agricultural legacy, securing a prominent global position in crop production. As per the 2018 Indian economic survey, this sector engages over half of the nation's workforce and contributes significantly to economic output. In 2016, agriculture, alongside allied sectors like animal husbandry, forestry, and fisheries, constituted a substantial portion of the GDP. Despite shifts in India's economic landscape, agriculture remains pivotal, profoundly impacting demographics and socio-economic structures.

Regarding international trade in agricultural products, India recorded noteworthy exports, particularly to developing and underdeveloped nations, spanning over multiple countries. Amidst India's diverse agricultural landscape, tobacco plays a crucial role. Resilient to adverse conditions, it thrives where other crops struggle. Indian tobacco cultivation spans significant acreage, making India a prominent player in global tobacco production.

Notably, India excels in exporting various tobacco products to a wide range of countries. Belgium stands as a significant importer, followed by Middle East countries, and the Philippines. In the fiscal year 2021-22, India's tobacco exports showed promising growth to key markets like Belgium and the United Arab Emirates, among others.

Shifting our focus to Bihar's Muzaffarpur District, it emerges as a hub for tobacco cultivation, especially the PT76 variety. However, this growth brings forth challenges, including labor conditions, storage facilities, child labor, pests and farm management. These issues warrant

Corresponding Author:
Saloni
Department of Agricultural Economics, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh, India

Attention to ensure sustainable growth within the tobacco industry.

To address these challenges, an ongoing study in Muzaffarpur District delves into aspects like marketing channels, costs, efficiency, price variations, and the producers' share in consumer rupees. By doing so, this study aims to provide valuable insights and potential solutions for the region's tobacco industry.

Research Methodology
Sampling design
To construct our sample, we employed a multi-level sampling strategy. Initially, we selected the region as the primary unit, followed by the block as the secondary unit, villages as the tertiary unit, and finally, farm sizes as holdings as the ultimate unit.

Selection of District
Muzaffarpur district in Bihar was chosen as the study area due to its specialization in large-scale tobacco farming. With a population of 4,801,062 and a subtropical climate, the district predominantly dedicates its land to agricultural purposes, primarily focusing on paddy cultivation while also encouraging agro-based industries.

Block Selection
Among the 16 blocks within Muzaffarpur district, we intentionally opted for Raghunathpur and Gaighat blocks due to their significant involvement in chewing tobacco cultivation.

Village Selection
We compiled a comprehensive inventory of chewing tobacco growers and villages in Muzaffarpur district in collaboration with the tobacco agriculture officer's board. Subsequently, we organized the villages within the selected blocks based on their chewing tobacco cultivation areas, randomly selecting 5% of the villages, totaling six (6) villages. Our chosen study area comprised Gahilo and Repura villages from Raghunathpur block, along with Peerauchha, Kodaie, Dahila, and Bhusara villages from Gaighat block.

Farmer Selection
We obtained a complete list of all tobacco farmers/respondents engaged in tobacco cultivation from the gram panchayat, with the assistance of village leaders in all selected villages. Subsequently, we sorted the farmer respondents based on the size of their chewing tobacco cultivation areas, dividing them into three groups:
1st size batch: Small farmers with cultivated areas less than 1-2 hectares.
2nd size batch: Medium-sized farmers with cultivated areas Ranging from 2 to 10 hectares.
3rd size batc: Large farmers with cultivated areas exceeding 2 hectares.

Analysis of Data
This analysis was done on the basis of Tabular calculation comparing the different parameters among different groups of the farmers. In this computation, weighted averages were used using data on per ha basis. Cost of cultivation and returns were estimated using standardized CACP cost concept.
Determining the Portion of Producer's Contribution in the Consumer's Expenditure is computed through the following equation.

Marketing expense
The overall expenditure encompassing the activities of different agents participating in the exchange and acquisition of the product until it is delivered to the end user were calculated as such:

$$M = Cf + Cm1 + Cm2 + Cm3 + . + Cmn$$

Were,
M = Total Marketing expense
Cf = Expenses covered by the producer cultivator from the moment the crop departs the farm until its sale, while, and
Cmn = Expenses accumulated by the intermediaries during the procurement and resale process.

Marketing Margin of intermediaries
a) Total margin = $PR_i - (P_{pi} + C_{mi})$

$$\text{Per cent margin} = \frac{[P_{Ri} - (P_{pi} + C_{mi}) \times 100]}{P_{Ri}}$$

Producer's contribution in Consumer's Rupee

$$P = \frac{(C - M)}{M} \times 100$$

Where
P = Producer's contribution in Consumer's Rupee
C = Total Consumer expenditure
M = Marketing expense

Price Spread = Total Marketing expense + Total Marketing Margin

Marketing Efficiency
Marketing efficiency = Consumer price / Total marketing expense + Marketing margin

Garrett's method of ranking

$$\text{Per cent Position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

RIJ = Rank assigned to the ith position by the jth individual
NJ = Number of problems ranked by the jth individual

Marketing Routes
The marketing routes comprise diverse entities responsible for transferring the producer's goods to the end consumer.
Upon the completion of chewing tobacco production, the product must find its way to the consumer. This involves various pathways. The route through which the product reaches the consumer is termed the distribution route. Multiple distribution routes can exist for the same product. In this ongoing investigation, attempts were undertaken to discover distinct distribution routes

Market Intermediaries
Marketing facilitators are individuals with expertise in executing various marketing tasks associated with the acquisition and distribution of goods, facilitating their journey from producers to consumers.

Village trader Wholesaler
Intermediaries such as commission agents and wholesalers charge fixed commission fees, which can sometimes impact product pricing during sales.

Retailer
Retailers engage in the procurement and sale of goods. The quantities they purchase and sell to consumers are relatively modest.

Problems in production and marketing
Percentage calculations were employed to pinpoint issues within the production and distribution of chewing tobacco.

Results and Discussion

Table 1: Marketing Cost, Marketing Margin and Price Spread in different nice farms Number of Respondents-100 SML=50+35+15=100 (Value in Rupees/quintals) Pathway A: Producer =>Consumer

Sr. No.	Particular	Rupees per Quintal
1	Consumer purchase price from producer	3700
2 Expenses borne by the producer		
I	Packaging expenses	10 (0.17)
II	Cost of packaging materials	15 (0.26)
III	Transportation expenses	20 (0.35)
IV	Marketplace expenses	97.5 (0.975)
V	Wages for labor	60 (0.08)
VI	Costs for loading and unloading	20 (0.35)
VII	Charges for weighing	20 (0.08)
VIII Various additional expenses		
3	Overall expenditure	242.5 (2.42)
4	Producer's earnings	1500 (15.00)
5	Price gap	88 (1.54)
6	Consumer expenditure	5436 (100)
7	Producer's portion in consumer's currency (%)	85.9
8	Marketing effectiveness (in %)	64.7

Note: The number in brackets represents the percentage relative to the total consumer price.

The table presented here displays Marketing Expenditure, Marketing Profit, and Price Distribution for Route A. The specific middleman responsible for delivering cigarettes to consumers remains undisclosed. Upon selling their product directly to consumers in the market, the marketing cost was determined to be 88 rupees per quintal, while the received price was 1500 rupees per quintal. The producer's share of the consumer prices amounted to 97.5%, with an 88 rupee price spread, resulting in a marketing efficiency of 64.7%.

Table 2: Marketing Cost. Marketing Margin and Price Spread in different Size of farm Number of Respondents-100 SML=50+35+15=100 (Value in Rupees/quintals) Pathway B: Producer →Traders →Retailer → Consumer

Sr. No.	Particular	Rs/Quintal
1	Consumer purchase price from producer	3700
2 Expenses borne by the producer		
I	Packaging expenses	5 (0.07)
II	Cost of packaging materials	7.5 (0.11)
III	Transportation expenses	20 (0.29)
IV	Marketplace expenses	8 (0.11)
V	Wages for labor	2 (0.02)
VI	Costs for loading and unloading	10 (0.14)
VII	Charges for weighing	5 (0.07)
VIII	Various additional expenses	2 (0.02)
3	Overall expenditure	59.5 (0.89)
4	Net price received by producer	1500.0 (65.30)
5	Trader's selling price to the retailer	3700 (79.55)
6 Expenses borne by the retailer		
I	Charges for loading and unloading	7 (0.10)
II	Packaging expenses	6 (0.08)
III	Market fees	23 (0.33)
IV	Trader's commission	26 (0.38)
V	Incurred losses and miscellaneous expenses	3.75 (0.05)
7	Trader's profit margin	564.25 (8.29)
8	Overall cost (I-v)	65.75 (0.96)
9	Retailer's selling price to the consumer	5067 (92.8)
10 Cost incurred by the retailer		
I	Fees for weighing	5 (0.07)
II	Costs for loading and unloading	8 (0.11)
III	Urban charges	16 (0.23)
IV	Transportation expenses up to the store	15.5 (0.22)

Sr. No.	Particular	Rs/Quintal
V	Additional miscellaneous fees	3.5 (0.05)
11	Retailer's profit margin	577 (8.48)
12	Overall cost (I-v)	48 (0.70)
13	Retailer's selling price to the end consumer	5800 (100)
14	Price differential	1224.5 (17.33)
15	Total payment by the consumer	6400 (100)
16	Producer's portion in consumer currency	71.17
17	Marketing effectiveness (in %)	5.17

Note: The numbers in parentheses indicate the percentage relative to the overall consumer cost.

The provided chart offers information regarding Marketing Costs, Marketing Profit, and Price Allocation for Path B. Two intermediaries engaged in the distribution of tobacco products to end consumers have been identified. In one of these pathways, manufacturers distribute their goods to traders, who subsequently sell them to retailers in the marketplace. Ultimately, after adding their markup, the product reaches the end consumer. When a producer sells a product to a trader, the marketing expense amounts to Rs. 59.5 per quintal.

Table 3: Marketing cost, marketing margin and price spread in different size of farms group. Number of respondents-100 SML-50-35+15=100 (Value in Rupees/quintals) Pathway C: Producer →Co-operatives →Wholesaler cum Commission agent →Retailer →Consumer

Sr. No.	Particular	Rs/Quintal
1	Price received by the producer	4700
2 Producer's expenses		
I	Cost of packaging	5 (0.07)
II	Expense for packing materials	7.5 (0.11)
III	Transportation expenditure	20 (0.3)
IV	Market-related costs	8 (0.12)
V	Labor costs	2 (0.03)
VI	Loading and unloading fees	10 (0.15)
VII	Charges for weighing	5 (0.07)
VIII	Various additional costs	2 (0.03)
3	Overall expenses	59.5 (0.89)
4	Producer's net income	4640.5 (69.78)
5	Producer's selling price to the trader	5050 (75.94)
6 Expenses covered by the merchant		
I	Costs related to loading and unloading	9 (0.13)
II	Expenditure on packaging	5 (0.07)
III	Market-related fees	15.5 (0.23)
IV	Commission fees for cooperatives	26 (0.39)
V	Various losses and additional expenses	2.5 (0.03)
7	Profit margin for cooperatives	357 (5.37)
8	Cumulative expenses (i-v)	58 (0.87)
9	Selling price from cooperatives to combined wholesalers and commission agents	5465 (82.18)
10 Expenditure incurred by the combined wholesaler and commission agent		
I	Charges for weighing	6 (0.09)
II	Loading and unloading costs	10 (0.15)
III	Urban fees	23 (0.34)
IV	Transportation up to the weighing location	12 (0.18)
V	Additional miscellaneous charges	2.5 (0.03)
11	Profit margin for the combined wholesaler and commission agent	466.5 (7.01)
12	Cumulative expenses (i-v)	53.5 (0.80)
13	Selling price from the combined wholesaler and commission agent to the retailer	5985 (90)
14 Expenditure incurred by the retailer		
I	Fees for weighing	5 (0.07)
II	Costs for loading and unloading	8 (0.12)
III	Urban charges	16 (0.24)
IV	Transportation expenses up to the store	15.5 (0.23)
V	Additional miscellaneous fees	3.5 (0.05)
15	Retailer's profit margin	617 (9.27)
16	Overall cost (i-v)	48 (0.72)
17	Retailer's selling price to the end consumer	6650 (100)
18	Price differential	1659 (24.94)
19	Total payment by the consumer	6650 (100)
20	Producer's portion in consumer currency	70.67
21	Marketing effectiveness (in %)	4.00

Note: Figure in the parenthesis indicates per cent to the total consumer price

The above table demonstrates the marketing cost, marketing margin, and price spread for Path C. Three intermediaries were identified through which Chewing Tobacco (PT 76) reaches consumers: wholesalers, agents, cooperatives, and

retailers. Producers sell their products to cooperatives, who sell them to commissioners/wholesalers, who then sell them to retailers in the market. Finally, after the markup is collected, the product reaches the consumer. When a producer sells a product to a cooperative in the market, the marketing cost was Rs. 59.5 per quintal.

Table 4: Comparison of total marketing cost, total marketing margin, price spread. Producers share in consumer rupee (%) and marketing efficiency in three different pathways

Sr. No.	Particulars	Pathway A	Pathway B	Pathway C
1	Overall marketing expenses	97.5	123.25	150.5
2	Entire marketing profit	0	564.25	617
3	Price differential	88	1224.5	1659
4	Percentage of producer's share in consumer's money	85.9	71.17	70.67
5	Marketing effectiveness	64.7	5.17	4

Table 4 reveals that the total marketing expenditure for Path A is Rs. 97.5/quintal, the price spread is Rs. 88/quintal, the producer's share of consumer rupees is 85.9%, and the marketing efficiency is 64.7%, with no overall marketing margin.

Table 5: Constraints in Marketing of Chewing Tobacco (PT 76) in different Size of Farms Group Number of Respondents=100 SML-50-32-15=100

Sr. No.	Expense Concepts	Size of Farms Group				Total	Rank
		Marginal	Small	Medium	Large		
1	Insufficiency of market data at the agricultural level	-	19	6	11	36	VIII
2	Markets distanced from farming areas	-	23	13	8	44	XI
3	Frequent price fluctuations	-	42	32	15	89	I
4	Absence of storage facilities	-	35	27	10	72	IV
5	Inadequate skilled labor for packaging	-	37	29	9	75	III
6	Elevated commission fees	-	34	26	8	68	V
7	Costly transportation expenses	-	15	7	9	31	XV
8	Delays in monetary transactions	-	40	31	10	81	II
9	Absence of knowledge about government incentives and subsidies	-	24	14	9	47	X
10	Limited awareness of emerging technologies	-	33	27	6	66	VI
11	Shortage of price support during market oversupply	-	18	5	10	33	XIV
12	Insufficiency of amenities and infrastructure at the marketplace	-	30	24	10	64	VII
13	Collaboration issues between commission agents and traders	-	29	31	3	62	XIII
14	Deficient marketplace infrastructure	-	10	15	25	50	IX
15	Absence of village-level marketing cooperatives	-	20	12	7	39	XII

Note: Figures in the parenthesis indicate percentage to the total

Table 5: Shows that constraints faced by the different size of farms group in marketing

Conclusion
The analysis presents insights into three distribution pathways for tobacco: Pathway A, Pathway B, and Pathway C. In Pathway A, no intermediaries are involved, and the producer directly sells to the consumer. The distribution cost amounts to Rs. 88/quintal, with the producer receiving a net price of Rs. 1500/quintal. The producer's portion of the consumer price is 97.5%, and the price differential is Rs. 88. The distribution efficiency is 64.7%.

In Pathway B, two intermediaries play a role: traders and retailers. The producer sells to the traders, who subsequently sell to retailers. The distribution cost stands at Rs. 59.5/quintal, with transportation expenses being the most substantial cost component. The selling price to traders is Rs. 3700/quintal. The trader's margin is estimated at 564.25%, while the retailer's margin is 577% of the consumer-paid price. The producer's share of the consumer price is 71.17%, and the price differential amounts to Rs. 1224.5. The distribution efficiency is 5.17%.

In Pathway C, three intermediaries are involved: cooperatives, commission agents/wholesalers, and retailers. The producer sells to cooperatives, who subsequently sell to commission agents/wholesalers, and finally to retailers. The distribution cost equals Rs. 59.5/quintal, with transportation costs being the most significant. The selling price to traders is Rs. 5050/quintal. The cooperative's margin is estimated at Rs. 4700, the commission agent/wholesaler's margin is Rs. 466.5, and the retailer's margin is Rs. 617 of the consumer-paid price. The producer's share of the consumer price is 70.69%, and the price differential is Rs. 1659. The distribution efficiency is 4.00%.

Table 4.4 summarizes the overall distribution costs, distribution margins, price differentials, producer shares in consumer rupees, and distribution efficiencies for each pathway. Pathway A has a distribution cost of Rs. 97.5/quintal, Pathway B has Rs. 123.25/quintal, and Pathway C has Rs. 150.5/quintal. The distribution efficiencies are 64.7%, 5.17%, and 4% respectively.

Most farmers indicated that they face significant challenges due to frequent price fluctuations and high transportation costs. Other factors affecting them include:
(1) Delays in cash payments (2) Lack of skilled labor for packing (3) Lack of storage facilities (4) High commission charges (5) Lack of awareness of new technologies
(6) Lack of amenities and facilities in the market (7) Lack of availability of market information at the farm level (8) Lack of proper infrastructure in the market (9) Lack of information about government schemes and subsidies (10) Markets being far away from farms (11) Lack of cooperatives in marketing societies (12) Mutual understanding between commission agents and traders (13) Lack of support prices when there is a glut in the market, with the least rank assigned to high commission charges.

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