Price Gap between Producers and Consumers of Ginger: Empirical Evidence from North Eastern Hill Region

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ABSTRACT

This paper attempts to estimate the price gap between producer of ginger and consumer. The study was conducted under extra-mural research project in all the states of North Eastern Hill Region (NEHR) excluding the state of Assam. A sample of 271 ginger growers, 8 village merchants, 9 wholesalers, one farmer producer's organisation and 22 retailers were selected to collect the primary data from growers as well as from the intermediaries involved in marketing of ginger in the region. Standard techniques were applied to estimate producers' price, marketing costs, marketing margins and price gap between producer and consumers' price. The study found that Channel-I (Producer-Wholesaler-Retailer-Consumer) which was most popular among the ginger growers of NEHR was the major channel in marketing of ginger. The ginger produce disposed-off through this channel is in the range of 47-90 per cent of farm produce and the rest is through other channels. But the price received by the ginger growers under this channel was found to be less than what they received in other channels across the states of NEHR. Even the price offered by consumer was observed to be comparatively higher than other channels. The apparent reason was more marketing margins earned by intermediaries and high marketing cost incurred by them including producers in marketing of ginger. Therefore, regulation on marketing costs and margin of functionaries need to be done at state level.

Keywords: Price, Gap, Producer, Consumers, Ginger, Empirical evidence.

JEL: P46, Q11, Q13, Q16.

I

INTRODUCTION

India is not only the larger producer but also the major consumer and exporter of spices in the world. During 2013-14, 0.81 lakh tonne of spices was exported from India fetching an income of Rs.13735.39 crore and during the same year, 0.13 lakh tonne was imported with the total outlay of Rs.2905.13 crore (Spices Board, 2015). During 2016-17, due to creative marketing strategies, innovative packaging, strength in quality and strong distribution networks spice exports from India are expected to reach US$ 3 billion (IBEF, 2017). Among the major spices grown, ginger ranked sixth in area and fourth in production during 2015. And about 0.23 thousand tonne of ginger was exported during 2014 fetching an income of Rs.256.14 crore and 0.36 thousand tonne was imported with an outlay of Rs.101.77 crore (Spices Board,

2015).There is a growth in export of ginger by 2.09 per cent over the last ten years (2005-2014) (Kumar and Kumar, 2011).

In North Eastern Region (NER) the share of spices is only 6.41 per cent to the horticulture production basket (Spices Board, 2015). Even though, the overall share of spices in the region is low comparatively NER alone produces 56.52 per cent of ginger in India from 44.05 per cent of the total cultivated area during 2013-14. The productivity was also high (5.57 t/ha) against the national average of 4.94 t/ha (Government of India, 2015). The leading producers of ginger in NER are Assam (33.03 per cent), Meghalaya (17.01 per cent) and Sikkim (14.07 per cent) and the least producer is Manipur (1.03 per cent), respectively (Government of India, 2015). The region produced about 370.24 thousand tonnes of ginger in the country during 2013-14 which were marketed as fresh product. The region produces both the local and improved varieties but the former are high yielder of rhizomes with more fibre content as compared to the improved varieties. Ginger produced in NER are also reported to have higher oil (1.6-2.5 per cent to that of 1.5-2.0 per cent) and oleoresin content (5.9-8.5 per cent to that of 5.0-8.0 per cent) than that produced in other parts of India (Rahman *et al.*, 2009). Comparatively, within the region the ginger produced in higher altitude contains high oleoresin and gives higher oil recovery.

Rahman *et al.* (2009) reported that specifically, in Sikkim extraction of mother was done by female member and in Meghalaya, Mizoram and Nagaland females played a dominant role in retail selling of ginger. The farmers do not make any arrangement in respect of grading, sorting by variety or size. The produce is simply packed in gunny bags irrespective of the status - whether clean or unclean, broken or whole, and the same is transported to the nearest roadside where it is piled up to wait for prospective buyers. Kumar *et al.* (2012) reported that the average returns of ginger growing adopting the recommended practices in Sikkim was higher (Rs.2.55 lakh) compared to that of the farmers practice (Rs.1.31 lakh). Absence of organised primary and terminal markets, absence of adequate technology in post-harvest management, asymmetric price information among the growers were some of the challenges faced by the ginger growers in India (Kithu, 2003). Similar problems are reported in marketing of ginger creating the gap between price paid by consumer and price received by producer of ginger in the north eastern hill region.

Absence of organised primary and terminal markets, unavailability of quality inputs (like hybrid seeds, etc.), absence of adequate technology in cultivation and post-harvest management, lack of credit facilities and asymmetric price information among the growers were some of the challenges faced by the ginger growers in India (Kithu, 2003). In the Eastern Himalayan region, three marketing channels were identified,viz., Channel-I: Producer →Taluka/District market→ Silliguri market→ Terminal market (Delhi, Kolkata, Bangladesh), Channel-II: Producer→ Commission agent→ City traders→ Taluka/District market→ Silliguri market→ Terminal market (Delhi, Kolkata, Bangladesh) and Channel-III: Producers→ Village lender/Merchant→ Taluka/District market→ Siliguri market→ Terminal market

(Delhi, Kolkata, Bangladesh). Of these, Channel-I was found to be most effective in terms of producer's share in the final price (Datta *et al*., 2003). The study has also identified that the lack of price information, absence of coordination among the growers, high transportation cost and absence of storage facilities remain the major marketing problems in the study areas (Datta *et al*., 2003). In the state of Mizoram the whole marketing of ginger was performed by four major agencies,viz., local agent (brokers), local traders, floating traders and itinerants dealers from outside the state (Zonuntluanga, 2003).

Large scale seed production of improved variety like Nadia in Meghalaya and marketing support in Mizoram encouraged ginger cultivation (Hnamte *et al*., 2012). About 63.87 per cent of the farmers in the region are marginal with maximum land holding of 1ha (Government of India, 2014). The problems of marketing in spices differ from other agricultural commodities in the country (Sharangi and Acharya, 2007). Most spice farmers are poor small scale farmers who produce spices as a cash crop. There is a lack of agricultural policy intervention in NER particularly relating to the marketing of spices. Therefore the farmers are left with no option other than selling to nearest merchant, buyer, village shop or some times to terminal market immediately after harvest when the price is at the lowest. Marketing the produce to pre-harvest contractors is also prevalent in certain areas (Hnamte *et al*., 2012). The spice growers/exporters need to spend more time in marketing than in production activities (Sharangi and Acharya, 2007). Public intervention is very crucial to protect the poor farmers from market risk resulting from open competition. Certain interventions were initiated in different states of the region. Therefore, the present research paper is an effort to provide an overview of gap what consumers pay and what producers receive in marketing of ginger.

II

METHODOLOGY

Locale of the Study

The present study has been carried out in seven states of North Eastern Hill Region (here after NEHR) under ICAR, New Delhi funded project titled "value chain analysis of ginger in North Eastern Hill region" during the crop year 2016-17. Among the north eastern states Meghalaya state ranks first in production of ginger (70.52 thousand MT) covering the area of 10.13 thousand ha followed by the state of Arunachal Pradesh covering 11.41 thousand ha area with the production of 68.70 thousand MT and the state of Sikkim ranked third in respect to area and production ginger in the region (Table 1).

Lower Dibang Valley district from Arunachal Pradesh, Churachanpur district from Manipur, East Garo Hills district from Meghalaya, Aizawl district from Mizoram,Dimapur from Nagaland, East Sikkim district from Sikkim and South

Tripura district from Tripura have been selected for the study as these ranked first in both area and production of ginger in their respective state. From the selected district, one block with highest area under ginger cultivation was identified and selected from each of the selected district in the respective state. A list of ginger producing villages from the selected block was prepared and the sample were drawn employing the technique of proportionate to size of population. A cluster of 3-6 villages was selected from each of the selected block of district of the state under study area.

TABLE 1. AREA AND PRODUCTION OF GINGER IN NORTH EASTERN HILL REGION DURING 2015-16

State	Area ('000ha)	Production ('000mt)
(1)	(2)	(3)
Arunachal	11.41	68.70
Manipur	3.45*	38.18*
Meghalaya	10.13	70.52
Mizoram	7.24	30.79
Nagaland	3.72	33.93
Sikkim	9.58*	52.53*
Tripura	1.88	15.57

Sources: Directorate of Horticulture of respective state.
*Data corresponding to the year 2014-15.

Data

Primary household data on well-structuredspecific schedule of questionnaire was collected through individual interview of households for the agricultural year 2016-17 from 34 households, 35 households, 60 households, 35 households, 38 households, 32 households, 37 households from Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, respectively making a total sample size of 271 ginger growers for the study in the region (Table 2).

TABLE 2. SELECTION OF HOUSEHOLDS IN NORTH EASTERN HILL REGION

State	Selected block	Total household (No.)	Selected ginger growers (No.)
(1)	(2)	(3)	(4)
Arunachal Pradesh	Roing	860	34
Manipur	Churchanpur	430	35
Meghalaya	Rongjeng	790	60
Mizoram	Thangnuam	670	35
Nagaland	Dhansiripar	570	38
Sikkim	Taza	590	32
Tripura	Jolaibari	730	37
	Total	4640	271

Selection of Market

To study the marketing pattern of ginger in the NEH region, the major markets of ginger in the study area were selected. The market of Lower Dibang, Churachandpur, William Nagar, Chanmari, Dimapur, Gangtok and Jolaibari were selected from

Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, respectively. A total 8 village merchants, 9 wholesalers, one farmer producer's organisation and 22 retailers were selected to collect the data on the marketing aspects of ginger in the region (Table 3).

TABLE 3. MAJOR MARKETS AND AGENCIES IN GINGER MARKETING OF NEH REGION

State	Major market	Intermediaries in ginger marketing			
		Village merchant (VM)	Wholesaler (W)	Farmer producer's organisation (FPO)	Retailer (R)
(1)	(2)	(3)	(4)	(5)	(6)
Arunachal Pradesh	Lower Dibang	2	1	-	3
Manipur	Churachandpur	2	1	-	3
Meghalaya	William Nagar	1	1	-	3
Mizoram	Chanmari	-	2	-	3
Nagaland	Dimapur	2	1	1	4
Sikkim	Gangtok	1	1	-	3
Tripura	Jolaibari	-	2	-	3
	Total	8	9	1	22

III

ANALYTICAL TOOLS

Marketing Cost and Margin

The concurrent margin has been estimated, as it is the difference between the price prevailing at successive stages of marketing at a given point of time, e.g., the difference between the farmers' selling price and retail price on a specific date is the total concurrent margin. To study the existing marketing system, marketing margins and cost for different channels in the selected markets of respective states the price spread and marketing efficiency (Acharya and Agarwal, 1999) were estimated by using following formulae.

Market Margin of i-th Middlemen (A_{mi})

$$A_{mi}=P_{ri}-(P_{pi}+C_{mi})$$

where,

A_{mi}= Market margin of i-th middlemen
P_{ri}=Total value of receipts per unit (sale price)
P_{pi}= Purchase value of ginger per unit (Purchase price)
C_{mi}=Cost incurred on marketing per unit by the i-th middlemen

Total Marketing Cost

$$C = C_F+C_{M1}+C_{M2}+C_{M3}+\ldots\ldots+C_{mn}$$

where,
C=   Total cost of marketing of the commodity

C_F= Cost paid by the producer from the time the produce leaves the farm till he sells it

C_{mi}= Cost incurred by the i-th middlemen in the process of buying and selling the product.

Producers' Price

The producers' price is the net price received by the farmer at the time of first sale. This is equal to the wholesale price at the primary assembling centre, minus the charges borne by the farmers in selling of ginger.

$$P_f = P_A - C_f$$

where,

P_A = is the wholesale price

C_f = is the marketing cost incurred by farmer

P_f = is the producers' price

Price gap = Consumers' purchase price - Net price received by ginger grower

Channels Identified for Disposal of Ginger

The state wise identified channels and disposed quantity is presented in Table 4. In the state of Arunachal Pradesh four channels, viz., Channel-I: Producer-Wholesaler-Retailer-Consumer, Channel-II: Producer-Village Merchant-Wholesaler-Retailer-Consumer, Channel-III: Producer-Retailer-Consumer and Channel-IV: Producer-Consumer were identified through which the disposal of the ginger from producer's field to final consumer was taking place. Out of these four channels the Channel-I and II were the major Channels. The maximum quantum of raw ginger has been found to be disposed through Channel-I (65 per cent) followed by the Channel-II (29.20 per cent). Rest of the quantity of ginger was disposed through Channel-III (4.71 per cent) and Channel-IV (0.17 per cent). Hence, it is very apparent from the discussion of disposal pattern of ginger in Arunachal Pradesh that the Channel-I was most popular among the ginger growers of the state in the region.

Similarly, four channels were observed in the state of Manipur in the region. These were, Channel-I: Producer-Wholesaler-Retailer-Consumer, Channel-II: Producer-Village Merchant-Retailer-Consumer, Channel-III: Producer-Retailer-Consumer and Channel-IV: Producer-Consumer. Among the channels, channel-I found to be major channels in disposal of ginger (56 per cent) which was followed by channel-II (31 per cent) in the state. Contrary to Arunachal Pradesh the channel-III also has potential in the market of Manipur state in the region through which more than 12 per cent of the produce has been disposed-off. Hence, popular channel among the ginger grower of the state was identified as channel-I.

TABLE 4. DISPOSAL PATTERN OF GINGER IN NORTH EASTERN HILL REGION

State (1)	Channels Identified (2)	Quantity (per cent) (3)
Arunachal Pradesh	Channel-I (P → WS→ R →C)	65.92
	Channel-II (P →VM → WS→ R →C)	29.20
	Channel-III (P→R →C)	4.71
	Channel-IV (P → C)	0.17
	Total	100.00
Manipur	Channel-I (P – WS – R–C)	56.00
	Channel-II (P – VM – R– C)	31.00
	Channel-III (P – R–C)	12.20
	Channel-IV (P–C)	0.80
	Total	100.00
Meghalaya	Channel-I (P → WS → R → C)	50.91
	Channel-II (P → VM → R → C)	37.11
	Channel-III (P → R →C)	8.84
	Channel-IV (P → C)	3.14
	Total	100.00
Mizoram	Channel-I: (P-WS-R-C)	76.57
	Channel-II: (P-R-C)	18.08
	Channel-III: (P-C)	5.35
	Total	100.00
Nagaland	Channel-I (P→WS→R→C)	47.10
	Channel-II (P→FPO→R→C)	40.20
	Channel-III (P→R→C)	8.43
	Channel-IV (P→VM→R→C)	3.13
	Channel-V (P→C)	1.14
	Total	100.00
Sikkim	Channel-I (P→VM→WS→R→C)	76.20
	Channel-II (P→WS→R→C)	13.26
	Channel-III (P→R→C)	8.37
	Channel-IV (P→C)	2.17
	Total	100.00
Tripura	Channel-I (P →WS → R → C)	89.21
	Channel-II (P → R → C)	9.58
	Channel-III (P → C)	1.21
	Total	100.00

Note: P-Producer, VM-Village Merchant, W-Wholesaler, R-Retailer, FPO-Farmer's Producers Organisation, C-Consumer.

The state of Meghalaya in the region has four channels for marketing of ginger. These were; Channel-I: Producer-Wholesaler-Retailer-Consumer, Channel-II: Producer-Village Merchant-Retailer-Consumer, Channel-III: Producer-Retailer-Consumer and Channel-IV: Producer-Consumer. The maximum quantity of the produce was disposed through channel-I (50.91 per cent) followed by channel-II (37.11 per cent), channel-III (8.84 per cent) and channel-IV (3.14 per cent). Hence, it is clear that channel-I was the popular channel or preferred channel to dispose-off the ginger produce from the farm of the ginger grower in the state.

Contrary to the state of Arunachal Pradesh, Manipur and Meghalaya the disposal pattern of ginger in the state of Mizoram is little bit different where only three channels viz., Channel-I: Producer-Wholesaler-Retailer-Consumer, Channel-II: Producer-Retailer-Consumer and Channel-III: Producer-Consumer were found to be

involved in the disposal of ginger in the state. Channel-I has been identified as major channel (76.57 per cent) followed by Channel-II (18.08 per cent) and channel-III (5.35 per cent) in disposal of ginger produce in the state.

The disposal pattern of ginger in the state of Nagaland was found very different from the other states of the region. There were five channels *viz,* Channel-I: Producer-Wholesaler-Retailer-Consumer, Channel-II: Producer-Farmer's Producers Organization-Retailer-Consumer,Channel-III:Producer-Retailer-Consumer, Channel-IV:Producer-VillageMerchant-Retailer-Consumer and Channel-V: Producer-Consumer identified mainly for disposal of ginger produce. As usual the maximum quantity disposal was estimated through channel-I (47.10 per cent) and followed by Channel-II (40.20 per cent). The channel-II was the unique channel in the region in which farmer's organisations were involved in marketing of ginger. After the channel-I, the channel-II was found to be popular among farmers.

In Sikkim state there were four channels viz., Channel-I: Producer-Village Merchant-Wholesaler-Retailer-Consumer, Channel-II: Producer-Wholesaler-Retailer-Consumer, Channel-III: Producer-Retailer-Consumer and Channel-IV: Producer-Consumer through which ginger produce found to be disposed-off. The channel-I was the only major channel through which more than 76 per cent of ginger produce was found to be disposed-off. The other channels were not having much popularity among the farmers of the state.

The disposal pattern of ginger in Tripura state has been observed to be very different from the rest of the states of the region. Only the channel-I: Producer-Wholesaler-Retailer-Consumer has played vital role to be the major channel for disposal of the ginger produce. More than 89 per cent of the total produce of the state found to be disposed-off through this channel only.

Producer's Price in Ginger Market of North Eastern Hill Region

The price received by ginger producer across the states in the prevailing channels is presented in Table 5 and Figure1. It is apparent from the table as well as from the figure that on an average across the channels producer received highest price in the state of Tripura (Rs.2606.42/qtl) which was followed by the state of Mizoram (Rs.2240.58/qtl), Nagaland (Rs.2095.90/qtl), Sikkim (Rs.11993.18/qtl), Manipur (Rs.1971.19/qtl), Meghalaya (Rs.1713.20/qtl) and Arunachal Pradesh (Rs.1692.10/qtl). Hence, analysis shows that lowest price received by ginger producer of Arunachal Pradesh. It may be due to high marketing cost incurred by the producer and low price offered by the buyer in the market for raw ginger comparative to the other states. The channel wise analysis across the states shows that the producer price under the Channel-I highest estimated in the state of Nagaland which was closely followed by Tripura and Manipur. The minimum price received by the producer in market of Arunachal Pradesh under the channel-I. The possible reason of low price in Arunachal Pradesh is more marketing costs incurred by the producer.

TABLE 5. ESTIMATION OF PRICE RECEIVED BY GINGER GROWERS ACROSS THE STATES IN
RESPECTIVE CHANNELS

(Rs./qtl)

| Channel	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Channel-I: P→WS→R→C	1481.82	2020.00	-	1968.18	2108.00	1818.33	2075.68
Channel-II: P→VM→ WS→R→C	1540.00	-	-	-	-	1585.00	-
Channel-III: P→R →C	1780.00	2100.00	1881.13	2227.78	2400.00	2362.50	2576.92
Channel-IV: P→C	1966.60	2187.63	2015.06	2525.79	2583.07	2206.90	3166.67
Channel-V: P→FPO→R→C	-	-	-	-	1591.67	-	-
Channel-VI: P – VM – R– C	-	1577.14	1243.40	-	1796.77	-	-
Overall	1692.10	1971.19	1713.20	2240.58	2095.90	1993.18	2606.42
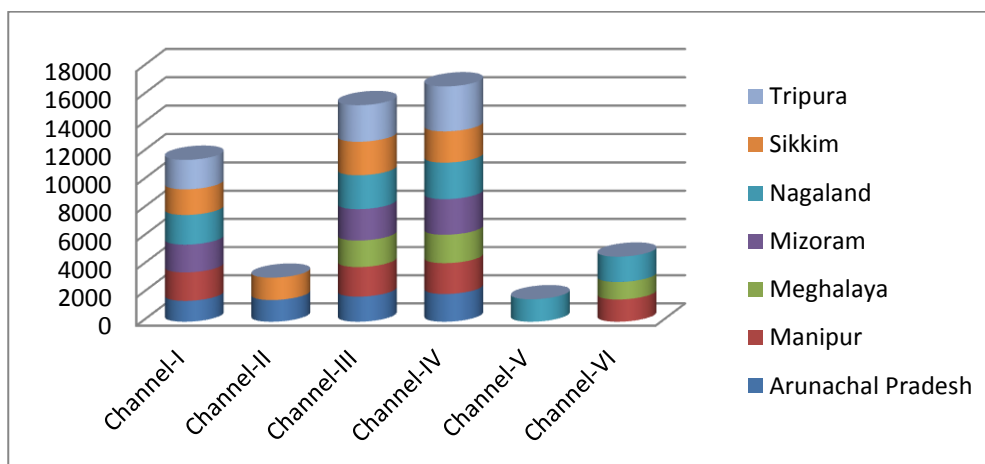
Figure 1. Price Received by Ginger Growers Across the States in Respective
Channels (Rs./qtl).

Hence, Channel-I needs to be strengthened in the state of Arunachal Pradesh by
reducing the cost of marketing at producer's level. The channel-II, the longest
channel, prevailed only in the states of Sikkim and Arunachal Pradesh with slight
difference in the producer's price in both the states. The channel-III was the common
channel which was prevailing in all the states and highest price was received by
Tripura ginger growers in this channel followed by Nagaland, Sikkim, Mizoram,
Manipur, Meghalaya and Arunachal Pradesh. There was not much difference in price
received by farmers of Sikkim and Nagaland under the channel. Similarly, the
channel-IV was also common channel of ginger marketing in which it was the
highest in Tripura followed by Nagaland, Mizoram, Sikkim, Manipur, Meghalaya
and Arunachal Pradesh where producer received price. There was negligible
difference in the price received by producer in the market of Mizoram and Nagaland.
Hence, the extent of difference of realisation of price may be due to difference in
marketing cost incurred by the producer. Channel-V is a unique channel which

prevailed in the state of Nagaland in which Farmer's Producers Organisations are the main players. Although the amount received through this channel by the producer found to be very less comparative to other channels but it can be strengthened by reducing the marketing cost. The channel-VI was found in three states and producer received highest price in the market of Nagaland through this channel. The reason may be non-accessibility of real price as produce is purchased by the village merchant who is always concerned with his profit.

Consumer's Price of Ginger Market of North Eastern Hill Region

The price paid by consumer in respective states under study is presented in Table 6 and Figure 2. The price of a commodity is affected by various factors. Here spatial difference of ginger price can be observed. Overall on an average the highest consumer's price has been observed in Nagaland state (Rs.4162.97/qtl) which was

TABLE 6. PRICE PAID BY CONSUMER IN THE STATES OF NORTH EAST HILL REGION UNDER RESPECTIVE CHANNELS

(*Rs./qtl*)

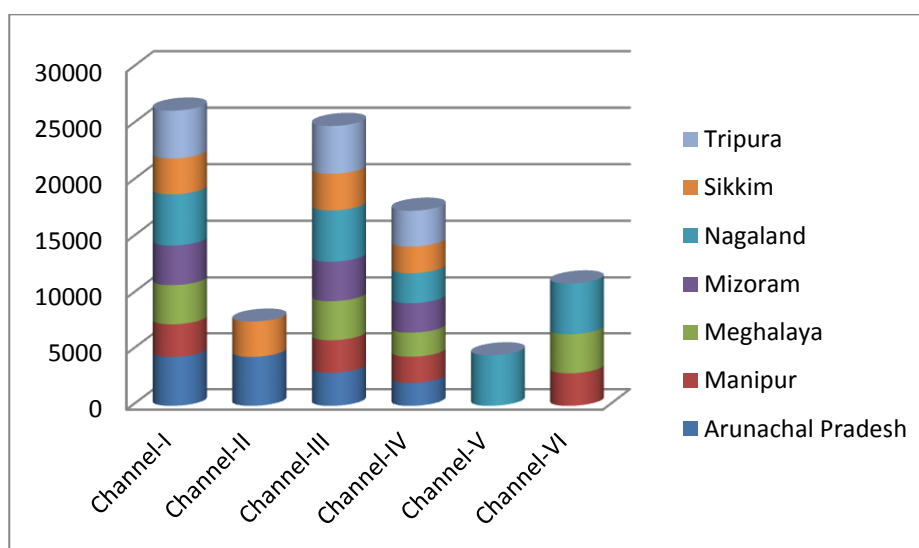| Channel	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Channel-I: P → WS→ R →C	4388.89	2916.67	3500.00	3500.00	4537.04	3166.67	4230.77
Channel-II: P →VM →WS→R→C	4388.89	-	-	-	-	3166.67	-
Channel-III: P→R →C	2965.69	2916.67	3500.00	3500.00	4537.04	3233.33	4230.77
Channel-IV: P → C	2060.00	2342.86	2160.00	2632.87	2666.67	2357.14	3166.67
Channel-V: P→FPO→R→C	-	-	-	-	4537.04	-	-
Channel-VI: P – VM – R– C	-	2916.67	3500.00	-	4537.04	-	-
Overall	3450.87	2773.22	3165.00	3210.96	4162.97	2980.95	3876.07

Figure 2. Price Paid by Consumer in Across the States under Various Channels.

followed by Tripura (Rs.3876.07/qtl), Arunachal Pradesh (Rs.3450.87/qtl), Mizoram (Rs.3210.96/qtl), Meghalaya (Rs.3165/qtl), Sikkim (Rs.2980.95) and Manipur (Rs.2773.22/qtl). The analysis of consumer price across the state shown that highest price offered by consumer under the channel-I was in Nagaland and followed by Arunachal Pradesh, Tripura, Mizoram, Meghalaya and Manipur. If we see the analysis of price received by the producer it has been reflected in the state of Nagaland which was highest but in the case of Arunachal Pradesh it was lowest. Hence, it was apparent that the market cost and margin of the functionaries has incurred and earned are more. Under the channel-II the consumer of Arunachal Pradesh has offered more prices comparative to the price of consumer of Sikkim. But again the price received by the producer was not much satisfactory in the case of Arunachal Pradesh where they received lesser price than the producer of Sikkim. So reason may be higher cost incurred by the producer and higher market margin earned by the functionaries involved in marketing of ginger under the channel. In case of channel-III and Channel-IV, the highest price offered by the consumer of Nagaland which was followed by Tripura, Mizoram, Meghalaya, Sikkim, Arunachal Pradesh and Manipur. Whereas, the price received highest under the same channel by the producer in the state of Tripura and followed by Nagaland, Sikkim, Mizoram, Manipur, Meghalaya and Arunachal Pradesh. Hence, as per the offer of price by the consumer the price received by the producer was not found in the same line and main reason is higher cost and margin earned by the agencies involved in both the channel. The channel-V found only in the state of Nagaland and price offered by the consumer under the channel was Rs.4537.04 per quintal which was quite high but the price received by the producer was not that much as observed in other channels prevailed in the state. Hence, this channel needs to monitor at every stage. The channel-VI shown the higher price in the state of Nagaland offered by the consumer and same time the price received by the producer was also found higher in the state comparative to the states of Manipur and Meghalaya.

Marketing Margin of Functionaries in Ginger Market of North Eastern Hill Region

Marketing margin earned by different agencies involved in marketing of ginger in the major markets of the states of North East Hill Region has been depicted in the Table 7. The highest market margin across the channels was estimated in the state of Nagaland (Rs.2207.44/qtl) which was followed by Arunachal Pradesh (Rs.1792.53/qtl), Tripura (Rs.1554.57/qtl), Meghalaya (Rs.1050.29.29/qtl), Mizoram (Rs.974.18/qtl), Sikkim (Rs.867.79/qtl) and Manipur (Rs.770.18/qtl). The minimum market margin was observed in the state of Manipur which was followed by Sikkim and Mizoram. Across the states of North Eastern Hill Region the market margin earned by the different agencies involved in the channel-I (P-WS-R-C) for marketing of ginger estimated to be highest in the state of Arunachal Pradesh (Rs.2313.61/qtl)

TABLE 7. MARKETING MARGIN OF DIFFERENT FUNCTIONARIES IN MARKETING OF GINGER IN
THE STATE OF NORTH EAST HILL REGION UNDER VARIOUS CHANNELS

(Rs./qtl)

| Channel	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Channel-I: P → WS→ R →C	2313.61	506.67	844.00	987.56	2003.79	870.30	1704.51
Channel-II: P →VM →WS→R→C	2133.43	-	-	-	-	1049.46	-
Channel-III: P→R →C	930.56	816.67	1462.87	960.80	1889.41	683.61	1404.63
Channel-IV: P → C	-	-	-	-	-	-	-
Channel-V: P→FPO→R→C	-	-	-	-	2606.32	-	-
Channel-VI : P – VM – R– C	-	987.19	844.00	-	2330.26	-	-
Overall	1792.53	770.18	1050.29	974.18	2207.44	867.79	1554.57
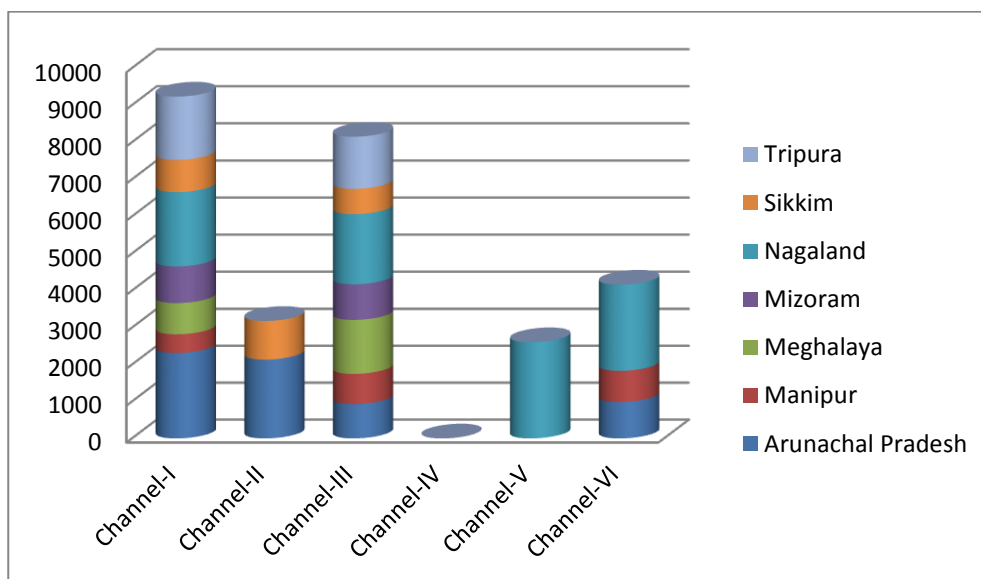
Figure 3.Marketing Margin of Different Functionaries in Marketing of Ginger in
Across the States under Respective Channels.

and lowest in the state of Manipur (Rs.506.67/qtl). Even huge amount of market
margin have been earned in the same channel in the state of Nagaland
(Rs.2003.79/qtl) and Tripura (Rs.1704.51/qtl). Whereas, meagre amount of market
margin has been estimated in the state of Meghalaya (Rs.844/qtl), Sikkim
(Rs.870.30/qtl) and Mizoram (Rs.987.56/qtl). Hence, the channel-I found to be
common in all the state but respect to extent of market margin there was huge
difference and it was found vary its amount with the state. Therefore, the modelof
Manipur for the channel-I need to adopt to minimise the market margin which will
reflect the enhancement in the due share of producer in the consumer's price. Under
Channel-II (P-VM-WS-R-C) market margin of the channel was highest in the state of
Arunachal Pradesh (Rs.2133.43/qtl) followed by Sikkim (Rs.1049.46/qtl). This

channel prevailed only in two states across the region. The channel-III (P-R-C) was the common channel in all the states and market margin was estimated to be the lowest in Sikkim (Rs.683.61/qtl) which was followed by Manipur (Rs.816.67/qtl) Arunachal Pradesh (Rs.930.56/qtl), Mizoram (Rs.960.80/qtl), Tripura (Rs.1404.63/qtl), Meghalaya (Rs.1462.87/qtl) and Nagaland (Rs.1889.41/qtl). Again the channel-III was common in the region but to reduce the market margin the model of Sikkim need to be replicated in other states to make it more feasible. The channel-V was only found in Nagaland in which the market margin was estimated of Rs.2606.32 per quintal. The channel-VI was found in three states and the extent of market margin was lowest in the state of Meghalaya compared to Nagaland and Manipur. Some interventions must be made in the state of Nagaland to reduce the market margin under the channel-V where the margin of agencies was found to be more than double compared to Manipur and Arunachal Pradesh.

Marketing Cost of Ginger in Markets of North Eastern Hill Region

The marketing cost incurred by various marketing functionaries involved in marketing of ginger in the states of North East Hill Region is presented in Table 8 and Figure 4. On an average the marketing cost across the channels has been estimated highest in the state of Arunachal Pradesh (Rs.414.36/qtl) which was followed by the state of Meghalaya, Tripura, Sikkim, Mizoram, Nagaland and Manipur. It was lowest in the state of Manipur (Rs.274.22/qtl). As it is clear that the marketing costs incurred by intermediaries and marketing margin earned by them directly affecting the share of producer in the consumer price. If we see the analysis of marketing cost under different channels across the states it was highest in Arunachal Pradesh under the channel-I (Rs.593.47/qtl) whereas, it was lowest in the state of Manipur (Rs.390/qtl) under the same channel. Similar trend under the same channel have been observed in preceding Table for market margin also in which market margin was highest in Arunachal Pradesh and it was lowest in Manipur. It shows that there were some unscrupulous activities adopted by the intermediaries in marketing of ginger in both the states. Again Channel-II also shown highest marketing cost in the state of Arunachal Pradesh compared to Sikkim state. Under the channel-III, the highest marketing cost was estimated in the state of Mizoram (Rs.311.43/qtl) and it was lowest under same channel in the state of Meghalaya (Rs.156/qtl). In other states in same channel there was not much difference in the marketing costs which was estimated in the range of Rs.187 to Rs.255 per quintal. It shows somehow the uniformity in respect to the marketing cost under the channel. The channel-IV which is known as direct marketing channel has shown the real spirit in state of Tripura where ginger producer themselves sold their produce without any marketing cost. The channel-V showed marketing cost only in the state of Nagaland. The channel-VI which prevailed in three states showed the highest marketing cost in the state of Meghalaya (Rs.732.76/qtl) and lowest in Manipur (Rs.352/qtl).

TABLE 8. MARKETING COST OF GINGER IN THE STATES OF NORTH EAST HILL REGION UNDER VARIOUS CHANNELS

(Rs./qtl)

| Channel	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Channel-I: P → WS→ R →C	593.47	390.00	536.44	544.26	425.25	478.04	450.57
Channel-II: P→VM→WS→ R→C	715.47	-	-	-	-	532.20	-
Channel-III: P→R →C	255.12	199.33	156.00	311.43	247.62	187.22	249.21
Channel-IV: P → C	93.40	155.23	144.94	107.07	83.60	150.24	0.00
Channel-V: P→FPO→R→C	-	-	-	-	339.05	-	-
Channel-VI: P – VM – R– C	-	352.33	732.76	-	410.00	-	-
Overall	414.36	274.22	392.53	320.92	301.10	336.92	349.89
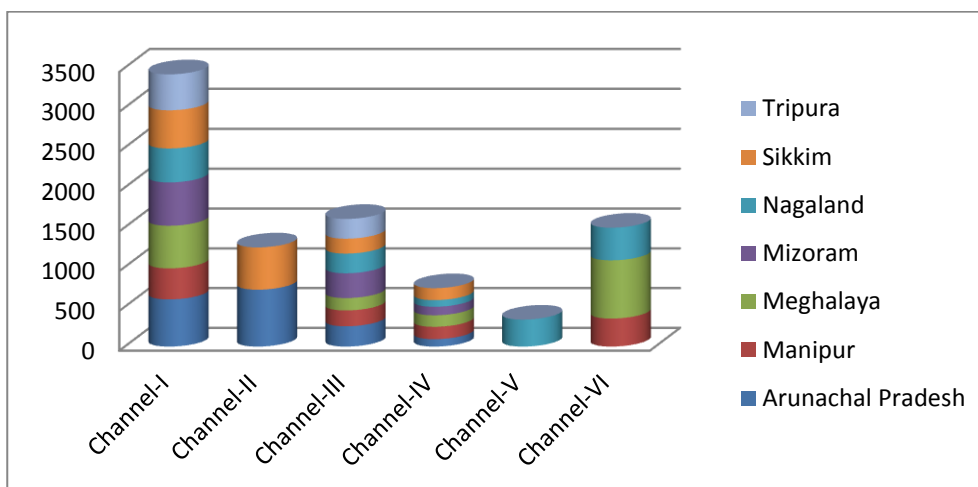
Figure 4.Marketing Cost in Marketing of Ginger in across the States under Respective Channels

IV

CHANNEL WISE GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE

*Channel-I (*Producer→ Wholesaler→ Retailer →Consumer)

The estimation of gap between producers' price and consumers' price under channel-I, i.e., Producer→ Wholesaler→ Retailer →Consumer has been presented in Table 9. It is evident from the Table that highest gap between producers' price and consumers' price has been ascertained in the state of Arunachal Pradesh (Rs.2907.07/qtl) and it was estimated lowest in state of Manipur (Rs.896.67/qtl). Hence, amount of gap varied Rs.896 to Rs.2907 which shows the huge gap under the channel among the states. Mainly the gap has been observed due to higher marketing cost and margin under the channel in the concerned state. Here the state of Arunachal Pradesh has major concern in which even consumers' price has been seen highest

comparative to other states of the region. Therefore, mechanism of price determination alongwith marketing costs and margin need to check in the state.

TABLE 9. GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE UNDER THE CHANNEL-I

(Rs./qtl)

Particulars	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Producers' price	1481.82	2020.00	-	1968.18	2108.00	1818.33	2075.68
Marketing cost	593.47	390.00	536.44	544.26	425.25	478.04	450.57
Marketing margin	2313.61	506.67	844.00	987.56	2003.79	870.30	1704.51
Consumers' Price	4388.89	2916.67	3500.00	3500.00	4537.04	3166.67	4230.77
Price gap	2907.07	896.67	2009.62	1531.82	2429.04	1348.33	2155.09

Channel-II (Producer →Village Merchant → Wholesaler→ Retailer →Consumer)

If we see the gap between producers' price and consumers' price it was estimated highest in the state of again Arunachal Pradesh comparative to the Sikkim state. This was due to the higher marketing cost and margin of different agencies involved in the channel-II (Table 10).

TABLE 10. GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE UNDER THE CHANNEL-II

(Rs./qtl)

Particulars	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Producers' price	1540.00	-	-	-	-	1585.00	-
Marketing cost	715.47	-	-	-	-	532.20	-
Marketing margin	2133.43	-	-	-	-	1049.46	-
Consumers' price	4388.89	-	-	-	-	3166.67	-
Price gap	2848.89	-	-	-	-	1581.67	-

Channel-III (Producer→Retailer→Consumer)

The estimated gap between producers' price and consumers' price was found to be highest in the state of Nagaland and lowest it was estimated in the state of Manipur, where it was more than two times less in comparison to the state of Tripura, Meghalaya and Nagaland. It was marginally differed in the state of Sikkim and Arunachal Pradesh (Table 11).

TABLE 11. GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE UNDER THE CHANNEL-III

(Rs./qtl)

Particulars	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Producers' price	1780.00	2100.00	1881.13	2227.78	2400.00	2362.50	2576.92
Marketing cost	255.12	199.33	156.00	311.43	247.62	187.22	249.21
Marketing margin	930.56	816.67	1462.87	960.80	1889.41	683.61	1404.63
Consumers' price	2965.69	2916.67	3500.00	3500.00	4537.04	3233.33	4230.77
Price gap	1185.69	816.67	1618.87	1272.22	2137.04	870.83	1653.85

Channel-IV (Producer-Consumer)

The channel-IV has shown the highest gap in the state of Manipur and lowest in Tripura. It is apparent from the Table 12 that the state of Manipur has more marketing cost whereas the state of Tripura has no marketing cost.

TABLE 12. GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE UNDER THE
CHANNEL-IV

(*Rs./qtl*)

Particulars	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Producers' price	1966.60	2187.63	2015.06	2525.79	2583.07	2206.90	3166.67
Marketing cost	93.40	155.23	144.94	107.07	83.60	150.24	0.00
Marketing margin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumers' price	2060.00	2342.86	2160.00	2632.87	2666.67	2357.14	3166.67
Price gap	93.40	155.23	144.94	107.07	83.60	150.24	53.55

Channel-V (Producer →Farmers' Producers Organization →Retailer →Consumer)

The price gap between producer received and consumer paid has been observed and estimated of Rs.2945.37 per quintal under channel-V in the state of Nagaland since this is the only channel which prevailed in the state (Table 13).

TABLE 13. GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE UNDER THE
CHANNEL-V

(*Rs./qtl*)

Particulars	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Producers' price	-	-	-	-	1591.67	-	-
Marketing cost	-	-	-	-	339.05	-	-
Marketing margin	-	-	-	-	2606.32	-	-
Consumers' price	-	-	-	-	4537.04	-	-
Price gap	-	-	-	-	2945.37	-	-

Channel-VI (Producer – Village Merchant – Retailer– Consumer)

The channel-VI shown the highest gap in the state of Nagaland and lowest was estimated in the state of Manipur. It was highest in the state of Nagaland due to higher marketing costs incurred and margins earned by different intermediaries and vice-versa (Table 14).

Overall Price Gap

Table 15 depicts the state wise price gap between ginger grower and consumer's price in different channels. In the state of Arunachal Pradesh the highest gap of price between producer and consumer has been estimated under the channel-I

TABLE 14. GAP ESTIMATION BETWEEN PRODUCERS' AND CONSUMERS' PRICE UNDER THE
CHANNEL-VI

(*Rs./qtl*)

Particulars	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Producers' price	-	1577.14	1243.40	-	1796.77	-	-
Marketing cost	-	352.33	732.76	-	410.00	-	-
Marketing margin	-	987.19	844.00	-	2330.26	-	-
Consumers' price	-	2916.67	3500.00	-	4537.04	-	-
Price gap	-	1339.52	2256.60	-	2740.26	-	-

TABLE 15. OVERALL PRICE GAP ESTIMATION BETWEEN CONSUMER'S PRICE AND
PRODUCER'S PRICE OF GINGER IN NEHR

(*Rs./qtl*)

Channel	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Channel-I: P → WS→ R →C	2907.07	896.67	2009.62	1531.82	2429.04	1348.33	2155.09
Channel-II: P→VM→ WS→ R→C	2848.89	-	-	-	-	1581.67	-
Channel-III: P→R →C	1185.69	816.67	1618.87	1272.22	2137.04	870.83	1653.85
Channel-IV: P → C	93.40	155.23	144.94	107.07	83.60	150.24	53.55
Channel-V: P→FPO→R→C	-	-	-	-	2945.37	-	-
Channel-VI: P – VM – R– C	-	1339.52	2256.60	-	2740.26	-	-
Overall	1758.72	802.02	1507.51	970.37	2067.06	987.77	1287.50

(Rs.2907.07/qtl) and it was minimum under the channel-IV (Rs.93.40/qtl). In the state of Manipur the highest gap between producer and consumer's price was observed under the channel-VI (Rs.1339.52/qtl) and it was minimum in the direct channel i.e.channel-IV. The price gap between producer and consumer in the state of Meghalaya has been estimated highest under the channel-VI (Rs.2256/qtl) and lowest similar to other state in the direct channel *i.e.* producer-consumer. In Mizoram, the channel-I depicted the highest price gap between producers and consumer's price and it has been estimated of Rs.1531.82 per quintal (Figure 5). In the state of Nagaland almost channels were found to be functioning and the highest price has been observed under the channel-V which is very new channel and it has been followed by Channel-VI, Channel-I and Channel-III. The price gap lowest was observed in channel-IV in the state. In the state of Sikkim only three channels were found in function and fourth was the direct marketing channel. The highest price gap has been estimated for the channel-II which is longest channel and the price gap has been reflected by the various agencies involved and earned the marketing margins in the channel. The price gap in the state of Tripura was estimated to be highest under the channel-I and followed by the channel-III. The lowest price gap has been estimated under the channel-IV in the state of Sikkim. The overall price gap across the channels has been estimated highest for the ginger in the market of Nagaland (Rs.2067.06/qtl) followed by Arunachal Pradesh (Rs.1758.72/qtl), Manipur (Rs.1507.51/qtl) and Tripura (Rs.1287.50/qtl). Interestingly, the price gap was very minimal in the rest three states, viz, Manipur, Mizoram and Sikkim where the price gap was observed to

be less than Rs.1000/qtl which is somehow permissible. But the range of price gap in other states of the region has been observed to be very high and ginger growers of those states deprived to harvest the justifiable economic price.
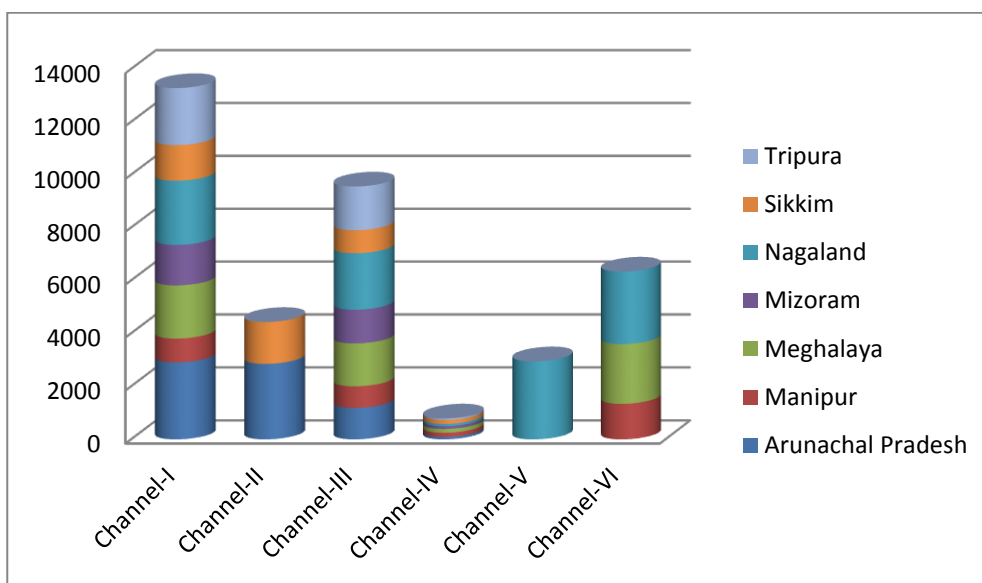

Figure 5.Overall Price Gap Estimation between Consumer's Price in North Eastern Hill Region.

V

CONCLUSION

The ginger of NEHR finds a special place among the spices at national and international level. Ginger being a major spice crop; it is being considered as the major source of farm income and livelihood generation. The channel for ginger marketing has been identified Channel-I (Producer-Wholesaler-Retailer-Consumer) which was most popular among the ginger growers of NEHR. The ginger produce disposed-off through this channel in the range of 47-90 per cent of farm produce and rest is through other channels. But the price received by the ginger grower under this channel was found to be less than what they received in other channels across the states of NEHR. Even the price offered by consumer was observed to be comparatively greater than other channels. The apparent reason was more marketing margins earned by intermediaries and high marketing cost incurred by them including producers in marketing of ginger. Therefore, regulation on marketing costs and margin of functionaries need to be done at state level. At the same time sufficient number of ginger produce collection centres need to be opened under the control of state agricultural marketing board of the respective state in order to avoid the high

transaction cost on marketing by the ginger growers. The ginger being a perishable product and bulky in nature need specific warehouse facility for store as well as specific transportation from farmers' farm. Hence, research and development in respect of post-harvest produce of ginger need to be initiated in all the states including establishment of processing units to enhance the due share of ginger growers in consumers' price.

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