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An analysis of Indian meat export of growth instability

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Abstract

The present study entitled “Export of meat from India – An Economic Analysis” For this study time series data on country wise exports for the period 1987 to 2013 were collected from annual publications of APEDA and website, FAO year books. The collected data were evaluated for two different periods viz. pre-WTO period: 1987-88 to 1994-95, post-WTO period 1995-96 to 2013-14 and overall period 1987-88 to 2013-14, in order to observe the effect of the WTO on export of meat. Markov chain analysis was used to analyze the market share and direction of trade of Indian meat.

The instability index for export of buffalo meat, sheep and goat meat, animal casings, processed meat and other meat indicated that export was comparatively stable during pre WTO periods as compared to post WTO period. At overall level instability index turned out to be high which could be because of low export during initial years which resulted in high variability in export.

Regarding instability of the export values of buffalo meat, sheep and goat meat, animal casings, processed meat and other meat it was observed that during overall period the extent of instability in export meat from India was high as compared to pre-WTO and post-WTO periods. During pre-WTO period instability indices for all types of meat were relatively stable as compared to post-WTO and overall period.

Keywords: Growth trends in export of meat, pre-WTO and post-WTO periods

Introduction

Livestock sector contributed important share in Indian export trade. India ranks first in the world in animal and cattle population. India ranks eighth in the world meat production; present meat production in India is estimated at 6.27 million tones which is 2.21 percent of the world’s meat production. Buffalo in India contributes about 30 percent of total meat production. The contribution by meat, cattle, sheep, goats and poultry is 30 percent, 5 percent, 10 percent, 10.2 percent and 11.5 percent, respectively.

The meat production has registered a healthy growth from 2.3 million tones at the end of 10th Five Year Plan (2006-07) to 5.5 million tones at the end of 11th Five Year Plan (2011-12). The growth rate for production of meat in 2011-12 was about 13 percent. In spite of big potential because of large livestock population, the meat industry in India has not taken its due share. There is a scope to increase meat production in India.

The present study on ‘Export of meat from India: An economic analysis’ has been taken with the following specific objectives:

1. To estimate instability in meat export.

Methodology

The present study is based on secondary data. The detail information required for the study was collected from secondary sources in order to accomplish the various objectives related to export of meat. Five types of meat were selected for the study namely buffalo meat, sheep and goat meat, animal casings, processed meat and other meat. The country wise time series data on export of meat in terms of value and quantity from 1987-88 to 2013-14 were collected from annual publication of APEDA (Agricultural and Processed Foods Export Development Authority, India) and its website www.apeda.com. The collected data were grouped into three periods .Pre-WTO period from 1987-1994, Post-WTO period from 1995-2013 and overall period from 1987-88 to 2013-14.

Instability Analysis

In order to study the instability in meat exports a linear trend equation was fitted to the data and whenever the regression coefficient were significant, the variation around the trend rather than variation around mean was used as an index of instability.

The coefficient of variation (CV) was calculated by using the following formula:

$$CV (\%) = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

The trend coefficient was tested for its significance. Whenever, the trend coefficient was found to be significant, the variation around the trend rather than variation around

mean was used as an index of instability. The formula suggested by Cuddy and Della (1978) [6] was used to compute the degree of variation around the trend. The value of instability index approaching unity indicates the stability in magnitude of an entity.

$$\text{Instability Index} = \frac{\text{Standard Deviation} \times 100 \times \sqrt{1 - r^2}}{\text{Mean}}$$

Table 1: Statistical parameters and instability indices for meat exports: (Quantity)

Sr. No.	Meat	Period	Mean	CV (%)	Instability Index
1	Buffalo Meat	Pre-WTO	19515.85	66.75	26.77
		Post-WTO	490445	137.28	85.1
		Overall	350910.73	171.43	118.79
2	Sheep and Goat Meat	Pre-WTO	5285.86	49.2	38.47
		Post-WTO	19694.002	107.23	69.3
		Overall	15424.95	122.24	86.28
3	Animal Casings	Pre-WTO	708.35	22.5	18.7
		Post-WTO	1586.49	51.28	38.79
		Overall	1326.3	59.94	41.73
4	Processed Meat	Pre-WTO	140.49	64.59	56.75
		Post-WTO	737.19	58.18	40.12
		Overall	560.39	81.12	46.53
5	Other Meat	Pre-WTO	NA	NA	NA
		Post-WTO	809.91	87.47	82.55
		Overall	809.91	87.47	82.55

The instability index for export of buffalo meat indicated that export was comparatively stable during pre WTO periods as compared to post WTO period. At overall level instability index turned out to be 118.79 percent which could be because of low export during initial years.

The export of sheep and goat meat was relatively stable during pre WTO period. At overall level the instability index worked out to be 86.28 percent indicating high variability in export of sheep and goat meat.

The instability index of export of animal casings indicated that export of animal casings was stable 18.7 percent during

pre WTO period as compared to post WTO period (38.79 percent). During overall period instability index for export of animal casings turned out to be 41.73 percent indicating instability in its export quantity.

The export of processed meat was relatively stable during post WTO 40.12 percent as compared to pre WTO period 56.75 percent. The instability index for overall period was 46.53 percent.

The variability in export of other meat was to the tune of 82.55 percent.

Table 2: Statistical parameters and instability indices for meat exports: (Value)

Sr. No.	Type of Meat	Nominal Price				Real Price		
		Period	Mean	CV (%)	Instability Index	Mean	CV (%)	Instability Index
1	Buffalo Meat	Pre	19516	66.75	26.77	43198.14	48.66	17.59
		Post	490445	137.28	85.1	315863.9	83.14	39.09
		Overall	350911	171.43	118.79	235074.1	107.59	56.17
2	Sheep and goat Meat	Pre	5285.9	49.2	-	12470.32	46.58	-
		Post	19694	107.23	72.82	15176.88	83.3	72.33
		Overall	15425	122.24	88.19	14374.94	76.62	-
3	Animal Casings	Pre	708.35	22.5	-	1765.954	30.92	26.99
		Post	1586.5	51.28	39.6	1489.025	37.57	-
		Overall	1326.3	59.94	40.96	1571.078	35.64	33.89
4	Processed Meat	Pre	85.232	59.88	-	196.7497	60.99	-
		Post	583.14	57.09	42.09	537.5093	47.91	-
		Overall	435.61	83.12	47.62	436.5435	62.71	54.18
5	Other Meat	Pre	NA	NA	NA	NA	NA	NA
		Post	809.92	0.87	0.81	667.425	1	0.89
		Overall	809.92	204.84	174.26	667.425	220.89	195.21

Buffalo Meat

The instability indices for export earnings from buffalo meat for pre-WTO period were 26.77 percent and 17.59 percent at nominal and real prices respectively and for post-WTO period they were 85.10 percent and 39.09 percent at nominal and real

prices respectively. For overall period the instability index was 118.79 percent and 56.17 percent at nominal and real prices respectively. The foregoing analysis revealed that, export earnings from buffalo meat was more instable during overall period at current price.

Sheep and Goat Meat

The regression coefficient for export value of sheep and goat meat during pre WTO period turned out to be non-significant, hence, instability index for the same was not estimated. For the period under study instability index at nominal price was 88.19 percent, whereas, for post WTO period it was 72.82 percent, whereas instability index at real price for post WTO period was 72.33 percent.

Animal Casings

The instability index for the animal casings for pre WTO period was 26.99 percent at real prices and for post WTO period it was 39.60 percent and at nominal prices. For overall period the instability indices were 40.96 percent and 33.89 percent at nominal and real prices respectively. This revealed that, export earnings from animal casing was most unstable at nominal prices.

Processed Meat

The instability index for the processed meat for post WTO period was 42.09 percent and at nominal price. For overall period the instability indices were 47.62 percent and 54.18 percent at nominal and real prices respectively. This showed highest instability at nominal prices.

Other Meat

The instability indices for post WTO period were 0.81 percent and 0.89 percent at nominal and real prices respectively. For overall period the instability indices were 174.26 percent and 195.21 percent at nominal and real prices respectively. This indicated that there was much variability in prices of other meat at real prices.

Conclusion

- This study showed that the impact of World Trade Organization on meat export was positive and beneficial to the meat industry.
- Among the importing countries UAE, Saudi Arabia, Malaysia, Kuwait, Angola, Egypt, Oman Hong Kong, Iraq and Portugal were the most stable and loyal importers of Indian meat.
- As observed that meat have tangible share in export earnings and it is a remunerative industry, so Government should provide necessary facilities including medium and long term loans for those who are engaged in meat industry, thereby to expand this industry and create more and more job opportunities and finally to promote economic welfare for the nation as a whole.
- There is a need to set up schemes for diversification and preparations of value added meat products depending upon market demand, suitable processing and manufacturing units can be set up.

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