

Study of Impact of food inflation on middle class consumer's household consumption of milk with reference to Thane city

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ABSTRACT

This paper focuses on the issue of middle class consumers in Thane city and their household consumption of milk alongside inflation in food articles. Thane city, being a part of Mumbai metropolitan region is having approximately 30 percent middle class population. The living expenses are at the higher side and persistent increase in the price of food articles affect their consumption. A family with an annual income between Rs. 3.4 Lakh to Rs. 17 Lakh (at 2009-10 price levels) falls in the middle class category. The objective of the study is to understand the degree of impact of inflation in food articles on middle class consumer's household consumption of milk in Thane. The Hypotheses of the study are; H₀: there is no significant relationship between household milk consumption and food inflation in middle class; household milk consumption in middle class is significantly affected by food inflation (Alternate hypothesis: H_a). The literature is reviewed from various secondary sources such as articles, reports, journals, RBI, National Dairy Development Board, Economic surveys etc. and primary data has been collected through consumer survey by interviewing the respondents (family head) from the population (east and west) of Thane city among 500 middle class households having family size of 5 members. The data has been classified, tabulated and statistically tested for significance using coefficient of correlation (r), regression, T-test and ANOVA. Findings from the study show that, there has been an increase in inflation in primary food articles over the years; the share of food in total expenditure has declined; the per capita availability of milk has also increased to 276 grams per day; the average daily consumption of milk in middle class is approx. one litre per day (5 members). It has been concluded that, there is no significant relationship between the household milk consumption and food inflation in middle class and their household milk consumption is not significantly affected. This study can be further extended to know the consumption of milk products by middle class consumers; as it would give some different insights. Finally, these findings suggest the

strategies to the concerned department of government in framing best policies for the middle class consumers in order to improve their nutritional diet.

Keywords: Middle class consumers, Household milk consumption, Food inflation.

INTRODUCTION

In India, last two decades have recorded substantial economic growth and improvements in livelihood among urban populations. High rate of development and urbanization results in the increase of middle class. Currently India has 31.4 million middle class households which represent 13 percent of India's population. The percentage of middle class in the country's total population will increase to 20.3 percent by 2015 and 37.2 percent by 2025 i.e. the number of middle class households in India is likely to more than double from the 2015-16 levels to 113.8 million households or 547 million individuals. As per the study, which uses 'household income' as the criterion, a family with an annual income between Rs 3.4 lakh to Rs 17 lakh (at 2009-10 price levels) falls in the middle class category. The 'middle class' in low and medium income economies in the world is increasingly demanding higher value agricultural produce and due to supply constraint the price of commodity increases. India is one of the largest producers of milk producing more than 100 million tonnes of milk per annum. India's per capita milk available for consumption is 276 grams per day. Household milk consumption comprises of taking milk in any form by members of the family. Milk being an essential commodity is covered by Essential Commodities Act, 1955. The main objective of the Act is to regulate the manufacture, commerce, and distribution of essential commodities, including food articles.

Inflation is the persistent rise in the general price level of the commodity. Opinion survey in India reveals that inflation is the most important concern of the middle class people badly affects their standard of living and consumption. Inflation in food, by its very nature is the enemy of middle class consumers. These categories of people have to fight everyday for their survival in metro cities as the cost of living is very high. Food inflation indicates higher prices of agricultural products. The primary articles contribute to 20.118% and food articles contribute to 14.337 % in Wholesale Price Index as per the WPI series 2004-05. Milk contributes to 3.23% in food articles. It is general perception, that the middle class is highly exposed to inflationary pressure specially inflation in food articles.

Why Thane city is selected for study?

Thane has a predominantly Maharashtrian culture like its neighbouring city Mumbai. As per provisional reports of Census India, population of Thane in 2011 is 1,818,872; of which male and female are 966,293 and 852,579 respectively. Because of the huge residential boom, the city has witnessed a large number of immigrants from the city of Mumbai as well as from other parts of state and country. Beside Marathi, sizable populations of North and South Indians, Sindhis, Gujaratis and Marwari and other people from different regions live in Thane, because of its proximity to Mumbai.

In Thane, the cost of living is very high; a large percentage of household income spends on basic needs and the disposable income is very less. Food constitutes part of living cost and a

persistent rise in food prices put heavy burden on the household expenditure of middle class. Thane is a city where middle class population is approx. 30% and hence it is possible to gain new insights into the problem of household milk consumption.

OBJECTIVES

1. To explore the various issues related to food inflation and middle class consumers.
2. To understand the degree of impact of food inflation on middle class consumer's household consumption of milk.

HYPOTHESIS OF THE STUDY

Ho: There is no significant relationship between household milk consumption and food inflation in middle class.

Ho: Household milk consumption in middle class is significantly affected by food inflation.

(Alternate hypothesis: Ha)

SCOPE OF THE RESEARCH

1. This research will help the government in taking major policy decisions and to decide upon the prices of food articles.
2. It will give new insights into the problem of milk consumption and food inflation.
3. It gives rise to scope for research in consumption of milk products by middle class consumers.
4. This research is conducted in urban area; it can be extended further to rural areas of the country.

LIMITATIONS OF THE STUDY

1. The research is limited to the population of Thane city.
2. The data collected may not be sufficient to depict the real picture of the household milk consumption in middle class.
3. The study is based on subjective opinions of the respondents and their participation.
4. Due to resource constraint it couldn't possible to cover all the aspects.

METHODOLOGY

The present study is interdisciplinary (socio-economic); the data has been collected from secondary as well as from primary source. The secondary data comprises various references which already existed in the published form such as research papers, articles relating to food inflations or books and websites for the review purpose. Selection of the papers is done on the basis of their relevance and contribution to the body of knowledge. A sample size of 500 middle class households has been drawn randomly from the population of Thane city i.e. 250 each from east and west region. The researcher has conducted survey among the middle class population of Thane city and filled up the questionnaire from the head of the family through structured interviews. During the survey; the middle class consumers were categorised on the basis of their household income from 3.4 Lakh to 17 Lakh per annum (at 2009-10 price

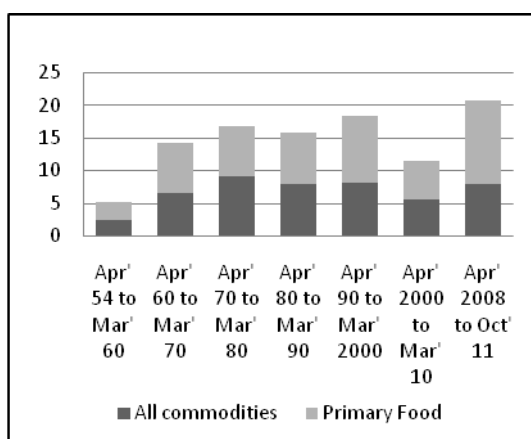
level) and family size of 5 members. Household income constitutes the income of all the earning members in the family. This research is restricted to Thane city, Maharashtra, India.

REVIEW OF LITERATURE

However number of studies have been conducted in the form of surveys and research work done on food inflation. An attempt has been made by the researcher to understand and acknowledge the work of various researchers in the field of food inflation and consumption.

Increasing trend in primary food articles:

Chart -1 represents the decade wise trend in the primary food articles in India from year 1954- 2011.

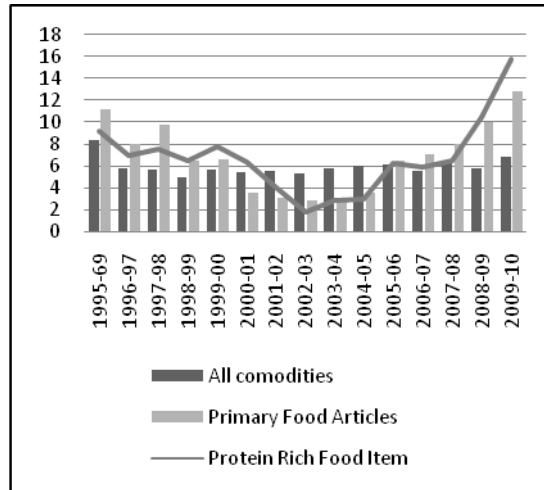


Source: NSSO Surveys

Chart 1. Decade wise average inflation

Shift in Dietary Habits towards Protein Foods:

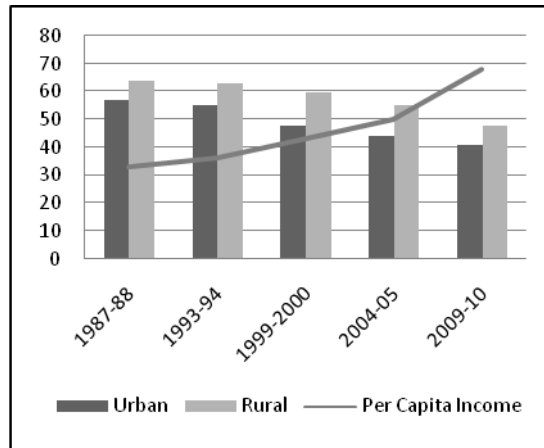
A distinct feature of recent food price inflation has been the sustained price pressure in protein rich items (milk, pulses, fish, meat and eggs). Inflation in protein rich items has generally exceeded both headline (WPI) inflation and inflation in primary food articles (Chart-2).



Source: NSSO Surveys

Chart 2. Inflation in Food Articles and Overall Inflation

One would expect, the share of food in total expenditure has declined over successive rounds of NSSO surveys alongside increases in per capita income, consistent with Engel’s Law (Chart-3).



Source: NSSO Surveys

Chart 3. Declining share of food in total expenditure

Weekly Trend in Food Articles Inflation:

Food inflation stood at -3.36% on a year-on-year basis in the week ended 24, December, 11 against 0.42% in the previous week. Food inflation slowed down during the week due to food prices easing 0.16% from the week before as shown in Table 1.

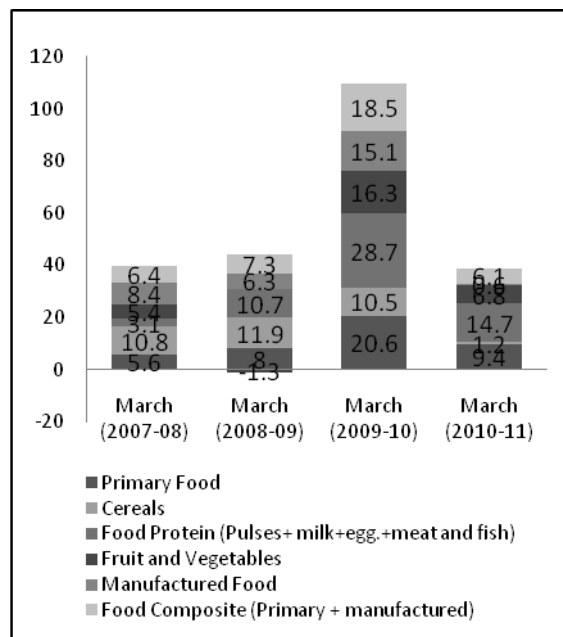
Table 1. Weekly Trend in Food Articles Inflation

WPI Sub Groups	Index	% YoY	% YoY	% WoW	% WoW
	24-Dec'11	24-Dec'11	17-Dec'11	24-Dec'11	17-Dec'11
Food articles	190.0	-3.36	0.42	-0.16	-0.37

Source: Economic Weekly

Food prices fell for the second consecutive week as food inflation remained in the negative zone at -2.90 % for the week ended December 31, 2011. Food inflation, as measured by the Wholesale Price Index (WPI), stood at -3.36 % in the previous week. It was above 19 % in the corresponding week of 2010.

Annual Food Inflation Trend in India:



Source: Corporate Planning and Economic Studies Department, December 2010 (www.india.reports.in)

Chart 4. Annual food inflation trend in India

Production and per capita availability of milk in India:

India's population is predominantly vegetarian, milk form an essential component of the human diet and no other natural food meets the nutritional requirements better than milk. In India, people used to consume milk as part of their daily diet and hence the consumption of fluid milk is very high. India ranks first in world milk production, increasing its production from 53 million tonnes in 1990-91 to about 121.7 million tonnes in 2010-11 (Table-2).The per capita availability of milk has also increased from 176 grams per day in 1990-1991 to 276 grams per day in 2010-2011. It is still low compared to the world average of 279

grams/day, as per FAOSTAT (Food and Agriculture Organization Statistical Database). India's milk production increased over 4% annually during 2000-01 to 2010-11 surpasses the 1.6% growth in population; the net increase in availability is around 2.4% per year.

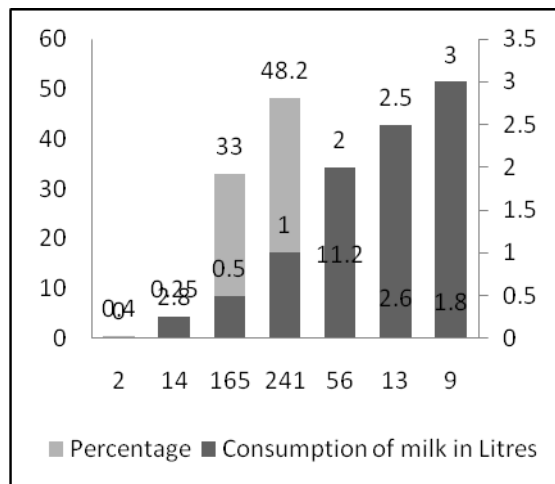
Table 2. Production and per capita availability of milk in India

Year	Per Capita Availability (grams/day)	Production (Million Tonnes)
1990-91	176	53.9
2000-01	220	80.6
2005-06	241	97.01
2006-07	246	100.9
2007-08	252	104.8
2008-09	258	108.5
2009-10	263	112.5
2010-11	276	121.7

Source: Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture

DATA ANALYSIS

Chart-5 represents the average daily household consumption of milk in middle class is approx. one litre per day in Thane city.



Source: Survey data (2011)

Chart 5: Average daily household consumption of milk in middle class consumers in Thane

Test of Hypothesis- I

While the correlation could range between -1.0 to +1.0 we need to understand whether any correlation found between two variables is significant or not i.e. if it has occurred solely by chance or if there is a high probability of its existence.

Table 3: Correlation between food inflation and household milk consumption

Pearson Product Moment Correlation -	Variable X	Variable Y
Statistic		
<u>Mean</u>	6.04	4.96
<u>Biased Variance</u>	1.3984	1.3184
<u>Biased Standard</u>	1.18253963	1.14821600
<u>Covariance</u>	-0.599599198396794	
<u>Correlation</u>	-0.440709365752894	
<u>Determination</u>	0.194224745062318	
<u>T-Test</u>	-10.9562009287107	
p-value (2 sided)	3.57018538237018e-25	
p-value (1 sided)	1.78509269118509e-25	
Degrees of Freedom	498	
Number of	500	

Source: Survey Data (2011)

From table-3 we can say that there is low negative correlation $r = -0.44$, $p = 0.035$ (**2-Tailed**) between food inflation and household milk consumption which is significant at 0.05 level i.e. the probability of this not being true is 5% or less. That is over 95% of the time we would expect this correlation to exist. The computed value of T-test is less than the table value and hence the Null Hypothesis, H_0 is accepted.

Thus, it can be inferred that there is no strong relationship exists between household milk consumption and food inflation in middle class.

Test of Hypothesis-II

Regression is the measure of average relationship between two variables in terms of the original units of data.

Table 4: Regression and ANOVA (F-Test)

Simple Linear Regression - Analysis of Variance			
<u>ANOVA</u>	DF	Sum of Squares	Mean Square
Regression	1.000000	128.032952	128.032952
Residual	498.000000	531.167048	1.066600
Total	499.000000	659.200000	1.321042
<u>F-TEST</u>	120.038339		

Source: Survey Data (2011)

From table 4 the computed value of $F=120.038$ is greater than the table value of F at a critical level of significance 5%. The difference in the variances is significant and it could not have arisen due to fluctuations of random sampling and hence, H_0 is rejected.

Thus, it can be inferred that household milk consumption in middle class is not significantly affected by food inflation.

FINDINGS AND CONCLUSIONS

1. There has been an increasing trend in inflation in primary food article over the years.
2. The share of food in total expenditure has declined alongside increases in per capita income and inflation in protein rich items has generally exceeded both headline (WPI) inflation and inflation in primary food articles.
3. The per capita availability of milk has also increased from 176 grams per day in 1990-1991 to 276 gram per day in 2010-2011 .In fact, milk in liquid form is not being consumed at home to the extent of availability; the large quantity of milk is utilised commercially for making milk products.
4. The average daily household consumption of milk in middle class is approx. one litre per day (5 members) in Thane city (Chart-5).
5. It has been seen that, household milk consumption in upper middle class is higher compared to lower middle class consumers; as the income grows the awareness and affordability for nutritional diet increases.
6. Household milk consumption in middle class is not significantly affected by food inflation.

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