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# THE CONSEQUENCES OF INFLATION ON THE DAIRY FARMING: A CASE STUDY OF SHEVGAON TEHSIL OF AHMEDNAGAR DISTRICT, MAHARASHTRA

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**Abstract**

*Both consumers and manufacturers are impacted by inflation. The theory that commodity prices often rise during inflationary periods is supported by historical evidence for the costs of inputs in dairy farming. If all other conditions remain constant, higher commodity prices will raise demand globally for agricultural like seeds, fertiliser, livestock, farm equipment, etc. where the animal feed comes? The costs of dairy inputs like feed, labour pushing up input prices. Increased interest rates can also affect the cost of living for families as a whole, the value of land, and currency rates, all of which have an effect on the overall purchasing power of farm resources. From a short-term viewpoint in dairy farming, the higher costs in India will increase production costs by 15% this year, primarily due to feed, and by around 8% the next year. This will maintain some financial pressure on dairy farmers and restrain the expansion of milk production, both of which should support dairy prices.*

*Eventually, feed and energy costs will decline and slightly reduce the cost of manufacturing. Additionally, over a longer period of time, farmers will discover more cost-effective ways to operate their dairy farms. However, increasing expenses will short-term stifle production and contribute to an increase in dairy prices. In the previous 20 years, India's economy has grown at a fast rate, but this expansion has been accompanied by a high rate of inflation in the cost of goods produced. The dairy industries have continued to grow extremely slowly, with very uneven growth. The demand has grown dramatically as a result of the rise in per capita income, but dairy and agricultural production cannot keep up with the surge in demand.*

*If the cost of a litre rises by one rupee, every component required to produce ordinary milk costs one rupee more. In addition to a 1% increase in milk prices, there will also be a 4% total increase in labour, transportation, and feed costs. Since the farmer who produces milk is the one who is most impacted, controlling the cost of production is crucial. The proportion of feeds is larger due to the dearth of abundant wet fodder and the research area's location in a rain shadow. Dairy farmers in the study area are experiencing higher inflation as a result of continued feed price volatility.*

**Keywords:** *Inflation, Dairy Farming, Profitability, Cash Flow, Capital Investment, Animal Health, Agriculture Inflation.*



## Introduction:

Inflation serves as a "Poor Man's Tax" in India, since the majority of the population lives at or below the poverty line. Since the poor population of the nation

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spends nearly half of their household income on food, this effect is exacerbated when food prices increase (NSS, 2011). All of these food and nutrition need fulfilled from agriculture and dairy sectors over wide a world. The two variables, on which the nation's predominately rural economy depends, are thought to be losing ground in recent times due to growing inflation, unbalanced cost of production, and net income. Farming is currently the world's primary source of income, however due to natural disaster losses and rising inflation, they are living in poverty. Inflation has an effect on producers as well as consumers. When a production sector makes a profit over its initial investment, it means that its product is both high-quality and reasonably priced for customers.

The dairy and agriculture sectors' growth has remained incredibly uneven and highly sluggish through to prise drops. The increase in per capita income has led to a sharp increase in demand, but dairy and agricultural production cannot keep up with the spike in demand. The term Inflation is a sustained increase in the average level of prices for goods and services over an extended period of time. As prices rise, each unit of currency has a decreasing purchasing power, losing its real value as an internal medium of exchange and a unit of account in the economy. Inflation is described by Coulborn as "too much money chasing too few goods." The Quantity Theory of Money holds that an increase in the total amount of money in circulation is the only factor that can account for price increases in an expanding economy, whereas Keynes characterised inflation as a full employment event.

Different nations use a variety of inflationary strategies. The two main indices used to measure inflation in India are the Consumer Price Index (CPI) and the Wholesale Price Index (WPI). Regardless of the production impact metrics, labour costs and raw materials are included in the primary production costs. Such industries experience losses if the cost of production rises while product prices stay the same. The reality in rural regions today is, first and foremost, that agriculture and its supporting industries are losing money as a result of the impact of growing production costs. If the price of a product rises by 1%, then each of its complimentary elements must also rise by 1%. For example, if a product requires 5 complementary factors, then each must rise by 1%, for a total increase of 5%. The increased production cost has a direct impact on economic losses.

**Materials and Method**

**Objectives:**

1. To analyze the current status of production cost in dairy farming compeer to the last decade and recent year.
2. To find out inflation rate and its impact on dairy farming in study area.

**Methodology:**

The study used time series data from the Ministry of Agriculture, Government of India, on the Consumer Price Index (CPI) inflation rate (2010–2022) and the Index number of agricultural production (2010–2022), with the triennium ending base year 2022–2033. Geometric means are used to determine the CPI. The average change over time in the prices domestic producers are paid for their output is measured by the Producer Price Index (PPI). Prior to consumers making final purchases of goods and services, PPI tracks price movements. Due to the complexity of the themes, primary data from surveys, PRAs, interviews with experts, etc. are necessary.

**Formula for the Profitability Index:**

The profitability index can be computed using the following ratio:

Profitability Index (PI) = PV of future cash flows / Initial Investment

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**Future Cash Flow PV:**

Time value of money calculations must be used to determine the present value of future cash flows. To compare future cash flows to current monetary levels, the right number of periods is used to discount cash flows.

**PV = CF1 / (1 + r) ^1 + CF2 / (1 + r) ^2 + ... + CF n / (1 + r) ^n**

**Selection of Area:**

The Ahmednagar district of the state of Maharashtra is situated in a dry area. Simply having a rain shadow area suggests an unfavourable or unevenly distributed environment. Due to illiteracy and economic weakness, dairy and agricultural businesses must continue using old methods of production, and rising production cost inflation has a negative influence on rural poverty in that region. One of them is the Shevgaon Tehsil, where half of the land is non-irrigated and dry. While case studies of this region might be examined in line with the PPI, which aids in determining the rate of inflation and how it affects dairy and agricultural production.

**Concept:**

There is a claim that the dairy farming in India has a significant impact on inflation. Food shortage inflation results from the imbalance between supply and demand caused by the decline by its productivity which fulfilled via additional nutrition supply through milk. This inflation spreads to other industries and raises prices generally (Gupta, 1974). There is evidence to suggest that the agricultural or food sector of the Indian economy is where inflationary pressures first emerged (Sengupta, 1991). According to India's Animal Husbandry and Dairy Secretary, milk production in the country's dairy industry will either remain unchanged or increase by 1-2% in 2022–2023. Milk inflation was estimated at 9.65% in February, higher than the provisional headline inflation rate of 6.44% for the same month, despite India being the world's largest producer of milk (The Economic Times, 01-Jun-2023).

The rise in production costs is the main cause of the increase in production cost. The cost of production and domestic milk supply, consumer demand for milk and its different product forms, seasonality in milk production, and import and export regulations are only a few of the economic aspects affecting India's dairy business. The fundamental issue facing the dairy processing industry in India is a fragmented supply chain, whereas the key challenge facing the dairy industry is maintaining quality and quantity within a diverse supply base. India continues to struggle with issues including poor milk quality, low yield, a lack of infrastructure, and a dispersed production. The study attempts to correlate agricultural and dairy production with national inflation against this backdrop.

**Analysis and Results:**

**Dairy Farming Economics:**

The metrics observed at the field level as well as the indicative and applicable input and output costs may be included (Cost table shows per cow capital investment for 10 animal plants).

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**Capital Cost (Per Cows):**

**Table No. 1 Capital investment for 10 cows farm cost per cow.**

| Sr. No. | Capital Parameter | 2010 | 2020 | 2023 | Growth (%) 2010-20 | Growth (%) 2020-23 |
|---|---|---|---|---|---|---|
| 1 | Animal Cost | 30000 | 50000 | 60000 | 40 | 16 |
| 2 | Transportation Cost | 500 | 1000 | 1200 | 50 | 16 |
| 3 | Construction Animal Shed | 4000 | 6000 | 7000 | 33 | 14 |
| 4 | Construction Calf Shed | 1500 | 2500 | 3000 | 40 | 16 |
| 5 | Chaff Cutter Cost | 30000 | 50000 | 55000 | 40 | 09 |
| 6 | Milking Machine | 20000 | 35000 | 40000 | 43 | 12 |
| Average Growth | | | | | 41 | 13.83 |

Source: Calculated by Author form different Authorize Data.

**Feed and health Cost (Per Cow):**

**Table No. 2 Annual feed and health cost per cow.**

| Sr. No. | Feed and Health Parameter | 2010 | 2020 | 2023 | Growth (%) 2010-20 | Growth (%) 2020-23 |
|---|---|---|---|---|---|---|
| 1 | Veterinary Aid Cost | 1400 | 2000 | 2200 | 30 | 09 |
| 2 | Cost of Concentrated Feed | 9500 | 19800 | 20000 | 52 | 02 |
| 3 | Cost of Dry Fodder | 1400 | 3200 | 3500 | 56 | 08 |
| 4 | Cost of Green Fodder | 4400 | 9100 | 9500 | 51 | 04 |
| 5 | Cost of Electricity & Water | 400 | 1050 | 1200 | 61 | 12 |
| 6 | Labour Cost | 8000 | 17000 | 18000 | 52 | 05 |
| Average Growth | | | | | 50.33 | 06.66 |

Source: Calculated by Author form different Authorize Data.

**Milk and sub-product Income (Annual Per Cow):**

**Table No. 2 Milk and sub product prices rupee per litter or kg.**

| Sr. No. | Income Parameter | 2010 | 2020 | 2023 | Growth (%) 2010-20 | Growth (%) 2020-23 |
|---|---|---|---|---|---|---|
| 1 | Milk (Per Litter) | 12 | 30 | 35 | 60 | 15 |
| 2 | Dug (Per Kg) | 0.3 | 1 | 1.1 | 70 | 9 |
| 3 | Calf (Per Node) | 3000 | 10000 | 12000 | 70 | 17 |
| Average Growth | | | | | 66.66 | 13.66 |

Source: Calculated by Author form different Authorize Data.

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**Results:**

**Profitability Index (PI)** = PV of future cash flows / Initial Investment

A. PV Growth between 2010 and 2020 = CF1 / (1 + r) ^1 + CF2 / (1 + r) ^2
= 66.66 %

B. PV Growth between 2010 and 2023 = CF1 / (1 + r) ^1 + CF2 / (1 + r) ^2
= 13.66 %

C. Initial Investment = 50.33+6.66=56.99 %

Profitability Index (PI) 2020 = **16.33 %**

Profitability Index (PI) 2023 = **01.40 %**

If we check the percentage of production cost and income as shown in Table 1 to 3 above, the net income is found to be less than the income growth of the last 10 years compared to the income growth of the last 3 years. Aggregate expenditure growth rate is 41% during 2010 to 2020 and 13.83% during 2020 to 2023. The net income growth rate during this period is 50.33 and 6.66 %. That is, the net rate of return in 2010 to 2020 is 16.33% per annum, while in 2020 to 2023 the rate is only 1.40% per annum. From this it can be concluded that the cost of production has increased in the recent period. This is mainly due to rising inflation and increase in fuel prices.

**A. Fuel Inflation:**

Production prices are significantly influenced by fuel prices in a number of ways. Transporting product from the producer to the consumer requires fuel; therefore an increase in fuel prices widens the difference between farm gate and retail prices. Additionally, fuel is required to run a number of agricultural devices including tractors and tube wells.

**B. Agricultural Wages:**

The pay of agricultural labourers is a major aspect that affects the cost of food items. In rural wages have increased at a rate significantly higher than the inflation rate, despite the fact that up until that point wages had grown in line with CPI inflation. The difference has, however, closed in recent years. Up until the middle of last decade, agricultural salaries in rural areas increased more quickly than non-agricultural incomes.

**Conclusion:**

In the case of milk, there has been an over demand in recent years. Overall, it is discovered that increased demand for food commodities in relation to supply puts upward pressure on the prices of such commodities. The prices of numerous commodities have been impacted by the excessive price increases in essential inputs. Due to this imbalance, milk producers receive less benefit. Every component needed to make regular milk costs per kg Rs. 1 more if the price of a litre increases by Rs 1. This includes a 4% overall rise in labour, transportation, and feed costs as well as a 1% increase in milk prices. Controlling the cost of production is essential since the farmer who produces milk is the one who is most impacted. Due to a lack of plentiful wet fodder and the fact that the research area is in a rain shadow, the proportion of feeds is higher. The study area's dairy producers are feeling the effects of rising inflation as a result of the ongoing fluctuations in feed prices.

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