

# **Farm Sector Performance and Food Price Inflation in India: Insights and Lessons from Pre- and Post- Economic Liberalisation Experiences**

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# The Context

- High **food inflation** has emerged as a major economic challenge in recent times.
- Among others, the **prolonged stagnation in the agricultural sector** since 1991 is considered to be a major contributing factor.
- However, a clear **long-term link** between the slowdown in agricultural growth and rising food prices is not yet established.
- The present understanding of the impact of agrarian slowdown on food inflation is based on the **recent experience (since year 2008)** with rising food prices

- Many **critical questions** which have significant policy implications are left unanswered as a result:

*(a) How did food prices behave in India in response to the growth of agricultural sector during the post-economic reforms period as a whole?*

*(b) Is the food price scenario experienced during the deceleration phase (post-1991) of agricultural growth significantly different from the one witnessing the pre-economic reforms phase?*

*(c) What are the root causes of various instances of food price spiral witnessed during the pre- and post-economic reforms period?*

*(d) How did India meet its food requirements and control the food prices throughout the post-reform period of decelerating agricultural output?*

# The Objective

To examine the long-term trends in the food price inflation in India in relation to the growth performance of Indian agriculture for the period from 1950-51 to 2012-13, so as to answer the aforementioned questions.

# Research Process

- Process followed in our work is **descriptive**.
- Trends in **WPI inflation rate** of various food items is examined in relation to the trends in indicators of agrarian performance such as **growth rate of production of the food items and agricultural GDP**.
- For this purpose, growth performance of Indian agricultural sector is divided into **four phases**:

*Pre-GR period (1950-51 to 1964-65)*

*Initial stage of GR (1967-68 to 1979-80)*

*Maturing stage of GR (1980-81 to 1991-92)*

*Post-economic reform period (1992-93 to 2012-13)*

**Compound Annual Growth Rates of Gross Domestic Product (GDP)  
and Agricultural GDP (Base: 2004-05)**

*(Percent)*

<b>Period</b>	<b>Total GDP</b>	<b>Agricultural GDP</b>
1950-51 to 1964-65	3.95	2.66
1967-68 to 1979-80	3.45	2.19
1980-81 to 1991-92	5.21	3.09
<b>1992-93 to 2012-13</b>	<b>7.01</b>	<b>2.92</b>

**Note:** Data for 2010-11 are Second Revised Estimates, for 2011-12 are First Revised Estimates and for 2012-13 are Provisional.

**Annual Compound Growth Rate of Production and  
Yield of various Food Commodities (%)**

Items	1950-1 to 1964-5		1967-8 to 1979-0		1980-1 to 1991-2		1992-93 to 12-13	
	Output	Yield	Output	Yield	Output	Yield	Output	Yield
Total Foodgrains	3.54	2.12	2.16	1.73	2.74	3.01	<b>1.58</b>	<b>1.57</b>
Cereal	3.76	2.43	2.47	2.08	2.87	3.20	<b>1.59</b>	<b>1.68</b>
Rice	4.35	2.86	1.95	1.18	3.71	3.12	<b>1.38</b>	<b>1.34</b>
Wheat	4.27	1.53	5.48	2.30	3.63	3.24	<b>1.93</b>	<b>1.12</b>
Coarse cereals	2.75	1.68	0.72	1.81	-0.01	1.73	1.45	2.58
Pulses	2.19	0.40	-0.54	-1.08	1.33	1.27	1.34	<b>0.91</b>
Nine Oilseeds	3.54	0.89	1.83	0.67	6.06	2.73	<b>2.03</b>	<b>1.75</b>
Sugarcane	6.36	3.07	2.79	1.16	3.67	1.44	<b>1.48</b>	<b>0.01</b>
Tea	-	-	3.33*	-	2.76	1.87	<b>1.99</b>	<b>0.03</b>
Coffee	-	-	5.01*	-	2.67	1.17	<b>2.33</b>	<b>-0.23</b>
Milk	1.64≠	-	2.23⊗	-	5.14	-	<b>4.15</b>	-
Egg	4.63≠	-	6.49⊗	-	7.71	-	<b>5.95</b>	-
Fish	-	-	-	-	5.14	-	<b>3.35</b>	-

**Notes:** - Not available; \* - From 1970-71 to 1979-80; ≠ - From 1950-51 to 1960-61 based on point-to-point data; ⊗ - From 1960-61 to 1979-80 based on point-to-point data

# Behaviour of Food Prices During various Agrarian Eras

**Average WPI Inflation Rate (Base: 2004-05) Recorded during various Episodes of Food Articles Price Inflation**

<b>Period</b>	<b>Duration (in months)</b>	<b>Inflation Rate (%)</b>
<b>Pre-GR Period (1954-55 to 1964-65)</b>		
March 1956 to August 1957	18	15.02
July 1958 to May 1959	11	9.91
May 1962 to November 1962	7	8.50
June 1963 to March 1965	22	13.70
<i>Overall Period (April 1954 to March 1965)*</i>	-	<b>4.48</b>
<b>Initial Stage of GR (1967-68 to 1979-80)</b>		
<b>June 1972 to May 1975</b>	<b>36</b>	<b>20.22</b>
February 1977 to January 1978	12	13.15
<b>July 1979 to March 1981⊗</b>	<b>21</b>	<b>10.96</b>
<i>Overall Period (March 1968 to March 1981) #</i>	-	<b>5.98</b>
<b>Maturing Stage of GR (1980-81 to 1991-92)</b>		
<b>April 1981 to August 1984</b>	<b>41</b>	<b>11.67</b>
April 1986 to February 1989	35	9.88
April 1990 to February 1993 @	35	15.11
<i>Overall Period (April 1981 to February 1993)</i>	-	<b>10.20</b>
<b>Post-Economic Reforms Period (1992-93 to 2012-13)</b>		
June 1994 to April 1997	35	11.47
<b>May 1998 to April 1999</b>	<b>12</b>	<b>12.99</b>
October 2005 to September 2007	24	9.22
<b>March 2008 to March 2013</b>	<b>61</b>	<b>11.16</b>
<i>Overall Period (March 1993 to March 2013)</i>	-	<b>7.86</b>

**Average Food Articles Inflation Rate during Agricultural Eras**  
**(Based on WPI Index with Base 2004-05)**

<b>Period</b>	<b>Food Grains*</b>	<b>Cereals</b>	<b>Pulses</b>	<b>Fruits &amp; Veg</b>	<b>Milk</b>	<b>Eggs, Meat &amp; Fish</b>	<b>Condim ents &amp; Spices*</b>
Pre-GR Period	-	3.69	8.34	6.62	4.09	7.42	-
Initial Stage of GR	5.10	5.40	7.54	6.87	5.07	8.64	4.34
Maturing Stage of GR	<b>9.89</b>	<b>9.94</b>	<b>9.00</b>	<b>9.81</b>	<b>10.28</b>	<b>9.59</b>	<b>18.89</b>
Post-ERs Period	7.32	7.36	8.44	7.68	8.04	9.64	6.14

**Notes:** \* - Until April 1963 foodgrains and condiments and spices classification were not existent.

**Average Inflation Rate (Base: 2004-05) Recorded during various Episodes of Food Products Price Inflation**

<b>Period</b>	<b>Duration (in months)</b>	<b>Inflation Rate (%)</b>
<b>Initial Stage of GR (1972-73 to 1979-80)</b>		
April 1972 to June 1975	39	15.00
December 1976 to June 1977	7	18.31
<b>April 1979 to June 1981</b> ⊗	<b>27</b>	<b>37.72</b>
<i>Overall Period (April 1972 to June 1981)*</i>	-	<b>12.57</b>
<b>Maturing Stage of GR (1980-81 to 1991-92)</b>		
April 1983 to August 1984	17	10.57
February 1986 to October 1988	33	8.68
<b>April 1989 to March 1993</b> @	<b>48</b>	<b>10.86</b>
<i>Overall Period (July 1981 to March 1993)</i>	-	<b>7.24</b>
<b>Post-Economic Reforms Period (1992-93 to 2012-13)</b>		
<b>April 1993 to March 1995</b>	<b>24</b>	<b>12.20</b>
December 1996 to March 1999	28	9.46
March 2003 to January 2005	23	7.29
January 2008 to July 2010	31	10.20
April 2011 to March 2013	24	7.64
<i>Overall Period (April 1993 to March 2013)</i>	-	<b>5.94</b>

**Average **Food Products** Inflation Rate during Agricultural Eras**  
**(Based on WPI Index with Base 2004-05)**

<b>Period</b>	<b>Dairy Products</b>	<b>Grain Mill Products</b>	<b>Sugar, Khandsari &amp; Gur</b>	<b>Edible Oils</b>	<b>Oil cake</b>	<b>Tea &amp; Coffee Processing</b>
Initial Stage of GR	8.96	6.17	11.39	11.14	10.49	-
Maturing Stage of GR	<b>10.21</b>	<b>9.43</b>	<b>2.32</b>	<b>9.64</b>	<b>8.32</b>	<b>6.66</b>
Post-ERs Period	6.58	5.21	7.16	4.43	8.84	5.69

# Reasons behind food price pressures

- Each episode of food articles and food products inflation was preceded by a **supply-shortfall**.
- Host of **other factors (Table 5 in paper)** such as flood, drought, wars, increase in procurement and issue prices, delay in importing food and speculative hoarding (as revealed from literature survey)

# Key conclusions from food Inflation Trend

- Despite the decline in food output growth, the **post-economic reforms period has experienced lower food inflation**, on an average, compared to the maturing stage of GR (in case of food articles) and to initial and maturing stages of GR (in case of food products).
- The prices of **majority of the individual food articles and food products** were turned out to be lower, on an average, in the post-economic reforms period compared to the maturing stage of GR

# Understanding the Behaviour of Food Prices

- We offer **three explanations** for relatively low food articles (compared with maturing stage of GR) and food products (compared with initial and maturing stages of GR) inflation rate witnessed during post-ERs period notwithstanding marked slowdown in agricultural growth since 1991 reforms.

## 1. Stable food production

- Though at a lower level, the growth of agricultural output and GDP was **more stable** during post-ERs period .
- Implication is that even if the rate of agricultural growth is slow, **low fluctuations in growth** cause few disruptions in food supply thereby contributing to low food price inflation.
- OTOH, high agricultural growth may not guarantee low food prices if accompanied by **frequent fluctuations in growth**
- This is evident from the experience of **maturing stage of GR**.
- High growth performance of Indian agriculture during this period was made possible due to extraordinary growth achieved in just **three years: 80-81 (14.44%), 83-84 (10.75) and 88-89 (16.85)**.
- In all other years the y-o-y growth rates of agricultural GDP and food grain output was either **negative or quite low**.

**Standard Deviation of Y-o-Y Growth Rates of Food Production and  
Agricultural GDP (%)**

	<b>1951-52 to 1964-65</b>	<b>1967-68 to 1979-80</b>	<b>1980-81 to 1991-92</b>	<b>1992-93 to 12-13</b>
Foodgrains	8.40	12.52	9.51	<b>8.45</b>
Total Cereals	7.75	11.90	9.36	<b>8.24</b>
Rice	10.20	14.80	13.43	<b>9.38</b>
Wheat	12.74	14.91	8.10	<b>6.45</b>
Pulses	14.66	19.27	13.94	<b>13.74</b>
Non Oilseeds	10.32	18.91	18.00	<b>20.68</b>
Sugarcane	16.51	13.04	8.37	11.33
Tea	-	3.49	4.34	<b>4.21</b>
Coffee	-	24.06	46.16	<b>10.35</b>
Milk	-	-	2.19	<b>0.96</b>
Egg	-	-	3.31	4.33
Fish (Total)	-	-	5.65	<b>2.69</b>
<b>Agricultural GDP</b>	<b>5.05</b>	<b>9.05</b>	<b>6.49</b>	<b>4.65</b>

## 2. Change in food consumption pattern

- A “secular shift” in food consumption pattern in favour of high-value food items has occurred in India during the maturing stage of GR (1983 to 1994), as evident from following trends
  - ❑ Drop experienced in expenditure share of cereals both in rural and urban India during 1983-1988 was historical highs & significantly higher than other periods
  - ❑ Except sugar, all high-value food commodities registered highest expenditure shares both in rural and urban areas during time interval 1983-1994
  - ❑ Highest percentage points increase recorded in expenditure shares of pulses, milk, sugar, edible oil, vegetables and fruits in rural India falls during 1983-1994.

**Trends in Percentage Composition of MPCE (at Current Prices) on  
Groups of Food Items in Rural India  
(Share in Total Consumer Expenditure on Food)**

	1967-68	1972-73	1977-78	1983	1987-88	1993-94	1999-00	2004-05	2011-12
Cereal	58.69	55.72 (-2.97)	50.96 (-4.76)	49.25 (-1.71)	40.99 <b>(-8.25)</b>	38.30 (-2.69)	37.31 (-0.99)	32.72 (-4.59)	24.62 <b>(-8.10)</b>
Gram	1.08	0.78 (-0.31)	0.65 (-0.12)	0.39 (-0.26)	0.38 (-0.02)	0.28 (-0.10)	0.22 (-0.06)	0.24 (0.02)	0.35 (0.11)
Cereal substitutes	1.08	0.75 (-0.34)	0.52 (-0.23)	0.28 (-0.23)	0.21 (-0.08)	0.17 (-0.04)	0.12 (-0.04)	0.13 (0.00)	0.14 (0.01)
Pulses and pulse products	5.69	5.88 (0.19)	5.93 (0.06)	5.37 (-0.56)	<b>6.22</b> <b>(0.85)</b>	6.02 (-0.20)	6.41 (0.39)	5.59 (-0.82)	6.39 (0.80)
Milk and milk products	9.56	10.01 (0.45)	11.93 (1.92)	11.46 (-0.47)	13.52 <b>(2.06)</b>	<b>15.02</b> <b>(1.50)</b>	14.74 (-0.28)	15.38 (0.64)	18.67 <b>(3.29)</b>
Sugar	5.07	5.16 (0.09)	4.11 (-1.06)	4.29 (0.18)	4.47 (0.19)	4.84 <b>(0.36)</b>	4.01 (-0.83)	4.31 (0.30)	3.8 (-0.51)
Edible Oil	3.76	4.82 (1.06)	5.55 (0.73)	6.14 (0.59)	<b>7.82</b> <b>(1.67)</b>	7.03 (-0.79)	6.29 (-0.74)	8.36 (2.07)	7.75 (-0.61)
Egg, Fish and Meat	3.10	3.39 (0.29)	4.15 (0.76)	4.61 (0.46)	5.07 (0.46)	<b>5.29</b> <b>(0.22)</b>	5.59 (0.30)	6.05 (0.46)	7.33 (1.28)
Vegetables	4.22	4.94 (0.72)	5.87 (0.92)	7.19 (1.32)	8.16 (0.97)	<b>9.56</b> <b>(1.40)</b>	10.38 (0.82)	11.08 (0.70)	9.95 (-1.13)
Fruits and Nuts	1.16	1.40 (0.24)	1.74 (0.34)	2.12 (0.38)	2.55 <b>(0.43)</b>	<b>2.76</b> <b>(0.21)</b>	2.89 (0.14)	3.39 (0.49)	3.08 (-0.31)

**Note:** Figures in the brackets are percentage points change over the years.

**Trends in Percentage Composition of MPCE (at Current Prices) on  
Groups of Food Items in Urban India  
(Share in Total Consumer Expenditure on Food)**

	<b>1967-68</b>	<b>1972-73</b>	<b>1977-78</b>	<b>1983</b>	<b>1987-88</b>	<b>1993-94</b>	<b>1999-00</b>	<b>2004-05</b>	<b>2011-12</b>
Cereal	38.06	36.17 (-1.90)	34.09 (-2.08)	32.85 (-1.25)	26.46 <b>(-6.39)</b>	25.69 (-0.77)	25.70 (0.01)	23.65 (-2.04)	19.02 <b>(-4.63)</b>
Gram	0.47	0.49 (0.02)	0.42 (-0.07)	0.32 (-0.10)	0.29 (-0.03)	0.32 (0.03)	0.23 (-0.09)	0.25 (0.01)	0.32 (0.07)
Cereal substitutes	0.23	0.20 (-0.04)	0.17 (-0.02)	0.13 (-0.04)	0.12 (-0.01)	0.12 (0.00)	0.09 (-0.03)	0.12 (0.03)	0.14 (0.02)
Pulses and pulse products	5.63	5.29 (-0.34)	5.95 (0.66)	5.46 (-0.49)	<b>6.04</b> (0.58)	5.55 (-0.49)	5.90 (0.35)	5.03 (-0.87)	5.59 (0.56)
Milk and milk products	14.12	14.47 (0.35)	15.88 (1.41)	15.62 (-0.26)	17.06 (1.44)	<b>17.94</b> (0.88)	18.05 (0.11)	18.62 (0.57)	20.2 (1.58)
Sugar	5.40	5.58 (0.18)	4.40 (-1.18)	4.16 (-0.25)	4.19 (0.04)	4.35 (0.16)	3.41 (-0.95)	3.55 (0.14)	3.0 (-0.55)
Edible Oil	6.14	7.52 (1.38)	7.73 (0.22)	8.19 (0.45)	<b>9.47</b> (1.28)	8.03 (-1.44)	6.53 (-1.50)	8.13 (1.60)	6.89 (-1.24)
Egg, Fish and Meat	4.86	5.07 (0.21)	5.77 (0.71)	6.10 (0.33)	<b>6.33</b> (0.23)	6.19 (-0.14)	6.52 (0.33)	6.36 (-0.16)	7.25 (0.89)
Vegetables	6.24	6.78 (0.55)	7.33 (0.55)	8.43 (1.09)	9.39 (0.96)	<b>9.99</b> (0.60)	10.69 (0.70)	10.47 (-0.22)	8.82 (-1.65)
Fruits and Nuts	2.75	3.11 (0.36)	3.26 (0.15)	3.57 (0.31)	4.49 (0.92)	<b>4.87</b> (0.39)	5.03 (0.16)	5.29 (0.25)	4.55 (-0.74)

- Two possible factors can be held responsible for the shift in food consumption demand
  - ❑ First, after experiencing low and stagnant economic growth during first three decades after Independence, Indian economy grew at a noticeably high rate during 1980s
  - ❑ Second, the significant increase in real agricultural wages during 1980s might have pushed up rural demand for high-value food.

## Increase in Real Wages

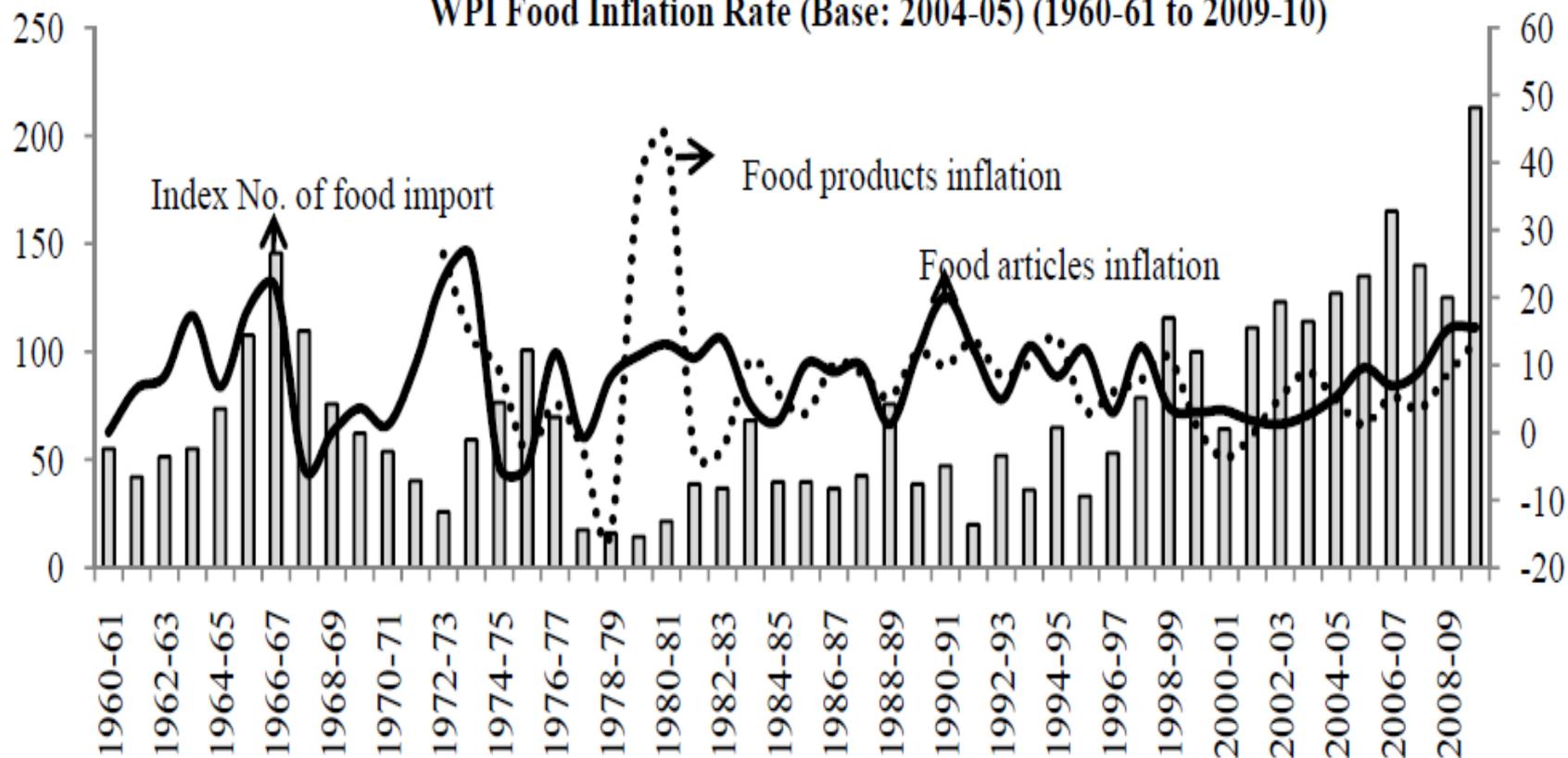
- Growth rate of real agricultural wages was not only highest during the period falling under the **maturing stage of GR** but also strikingly different from other periods.
- Real wages for male agricultural labour grew at the rate of **3.75% during 1983 to 1993-94**, against **1.33% and 0.59%** recorded respectively during the periods 1993-94 to 1999-00 and 1999-00 to 2010-11
- Prior to maturing stage of GR (i.e. from 1964 to 1980) as well, the growth of real agricultural wages was slow (see Chavan and Bedamatta, 2006).
- Higher wages might have added pressure on food prices in the 1980s by feeding into the cost of food production

### 3. Import Liberalisation

- Liberalisation of agricultural imports as part of economic liberalisation policies, has enabled India to **import more quantities of various food items** to meet her food requirement at times of domestic shortage and escalating food prices.
- Since Independence, India's aggregate food imports remained at a high level and were adequately responsive to food price escalations **before mid-1970s and after mid-1990s**.
- Prior to the opening up of the Indian economy only the import of **cereals, milk, and milk products** have responded adequately to the inflationary pressures witnessed in these commodities

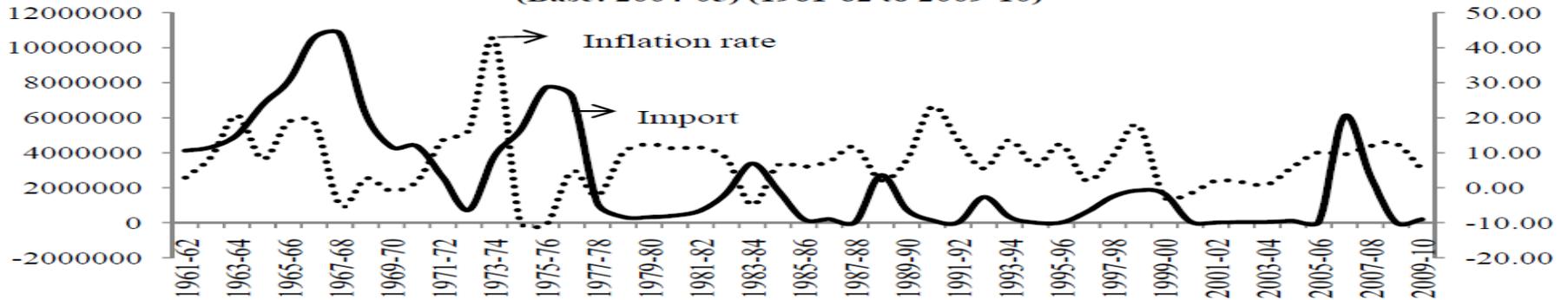
- The import of other food commodities, though responded positively to price escalation, was **very limited** during the same period.
- After opening up of the Indian economy, import of **several agricultural products** namely pulses, vegetables, fruits, spices, milk products, edible oils, oil cake, and sugar increased significantly in response to the price shocks occurred in these products
- In particular, increase in imports of many of these products was phenomenal **since early 2000s**

**Yearly Movements in Index Number (Base: 1999-00) of Food Imports (Quantum) and WPI Food Inflation Rate (Base: 2004-05) (1960-61 to 2009-10)**



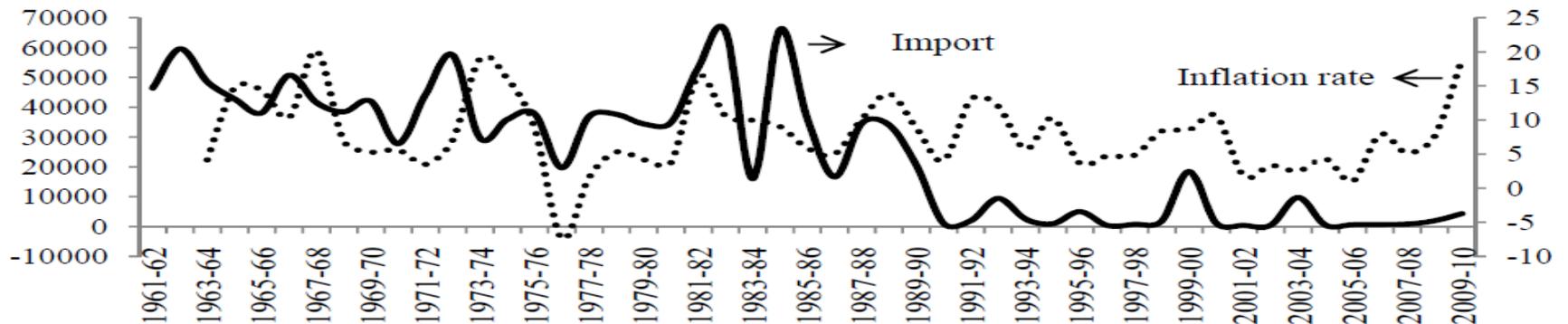
**Source:** HSIE RBI (For Import Index) and CSO (For Inflation)

**Yearly Movements in Cereal Imports (in Tonnes) and WPI Inflation Rate of Cereals (Base: 2004-05) (1961-62 to 2009-10)**

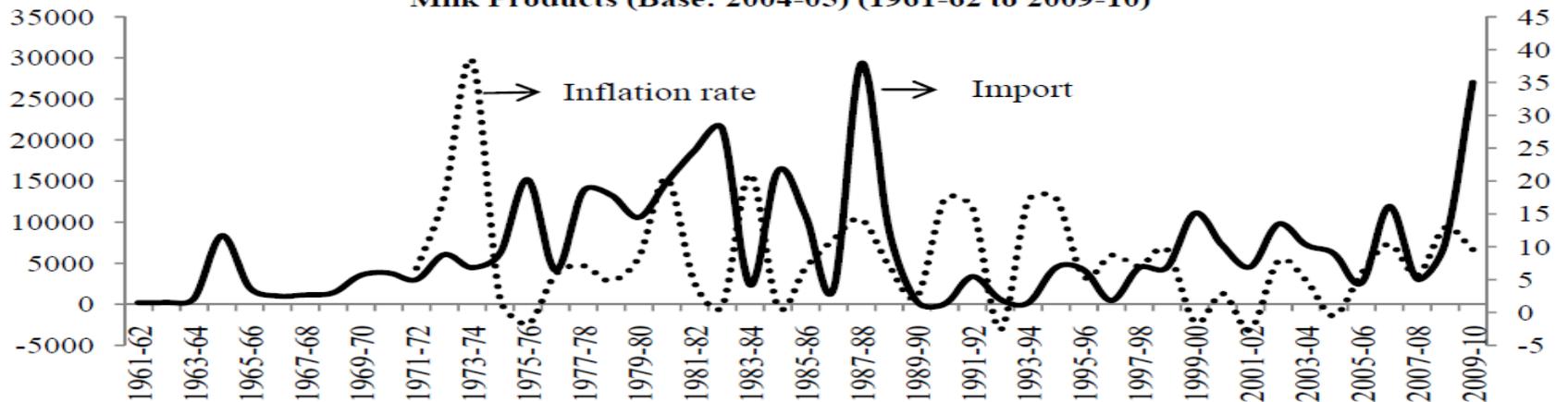


Source: Food and Agriculture Organization STAT (FAOSTAT) (for imports) and CSO (for inflation)

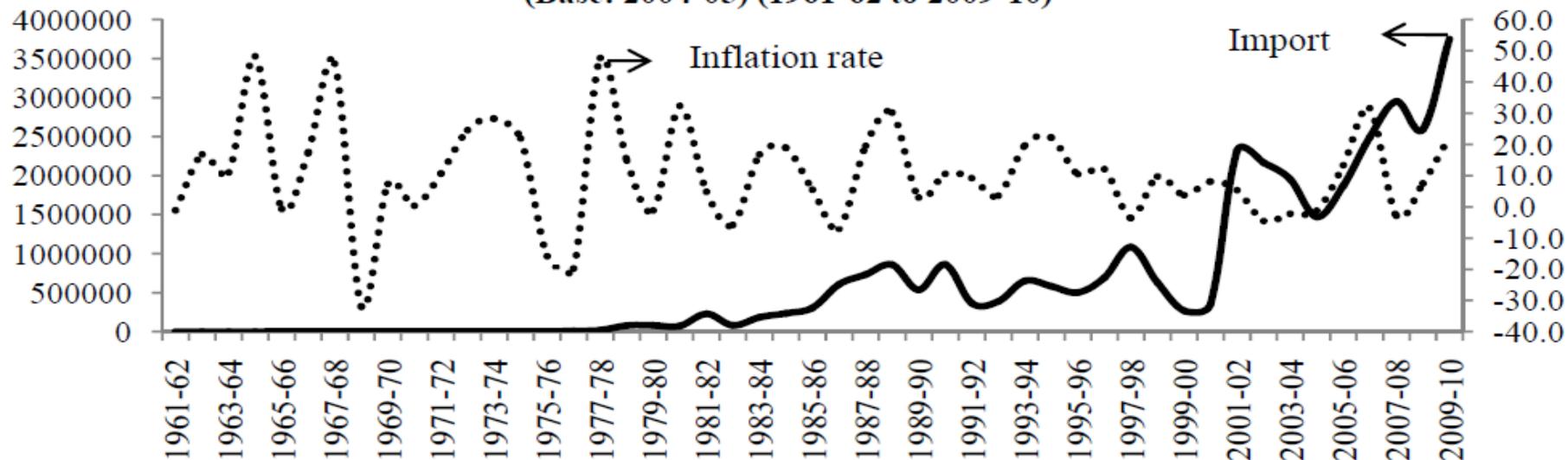
**Yearly Movements in Milk Imports (in Tonnes) and WPI Inflation Rate of Milk (Base: 2004-05) (1961-62 to 2009-10)**



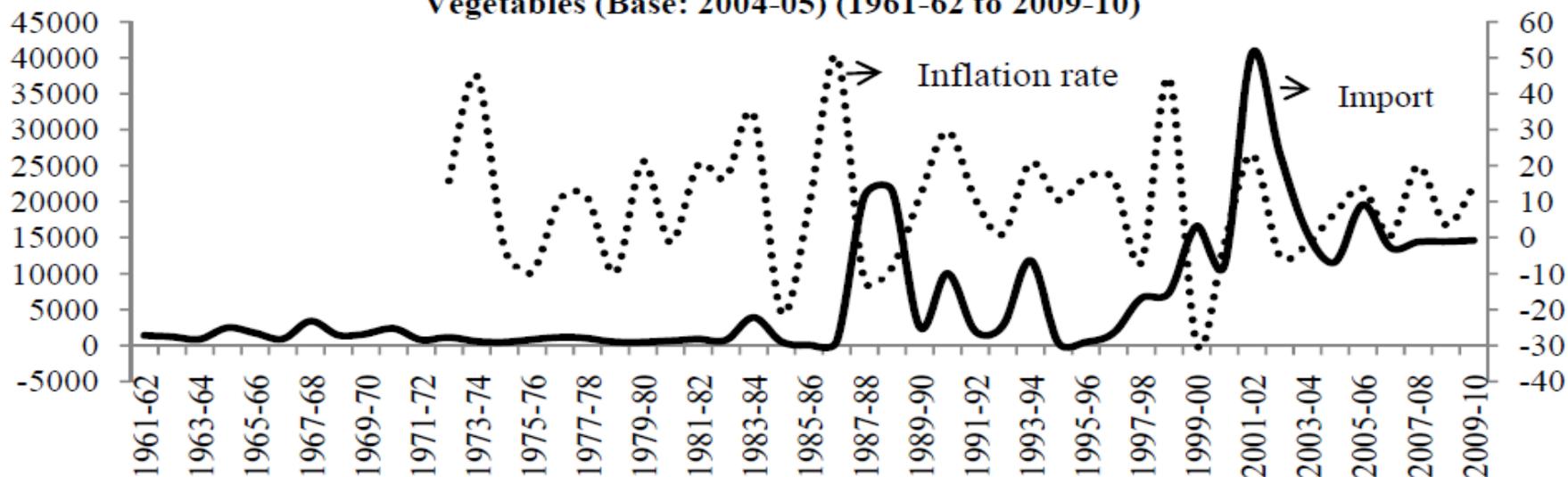
**Yearly Movements in Milk Products Imports (in Tonnes) and WPI Inflation Rate of Milk Products (Base: 2004-05) (1961-62 to 2009-10)**



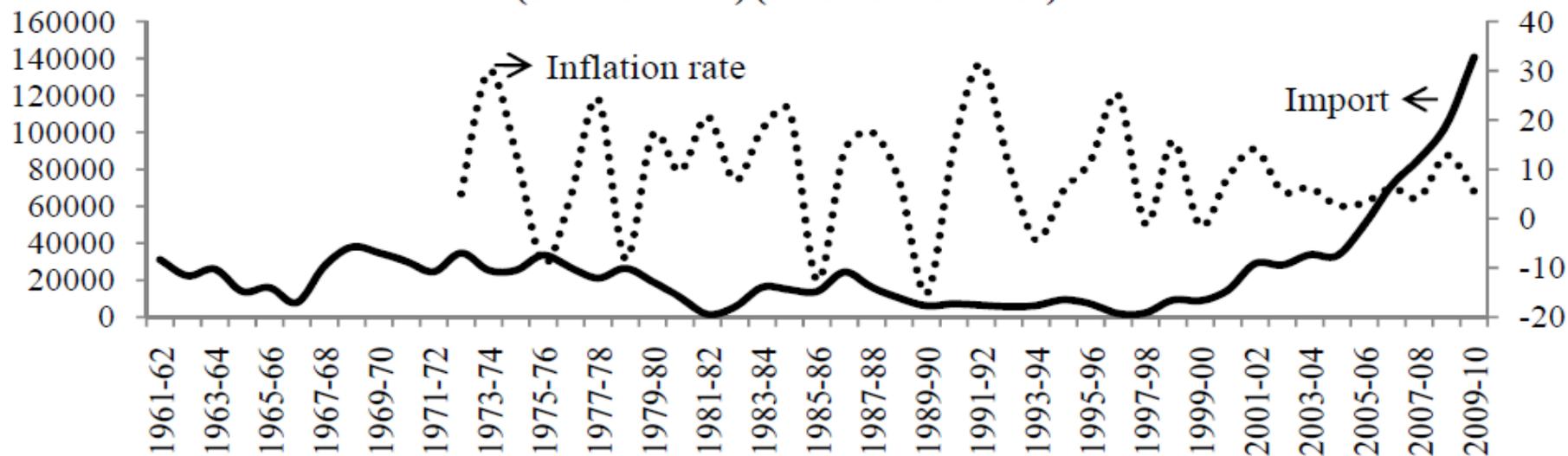
**Yearly Movements in Pulses Imports (in Tonnes) and WPI Inflation Rate of Pulses  
(Base: 2004-05) (1961-62 to 2009-10)**



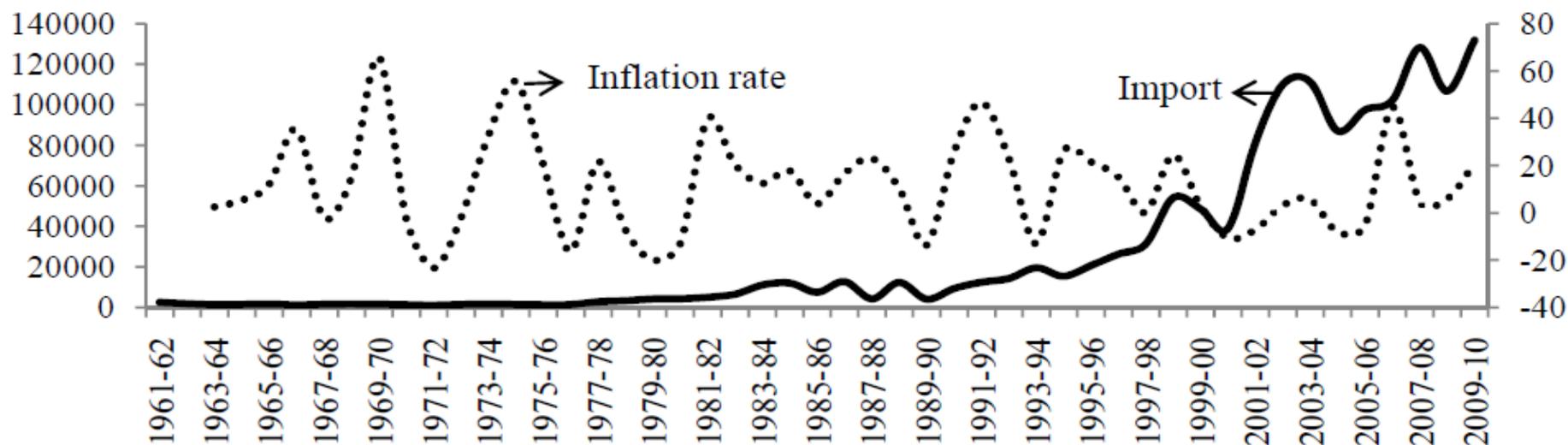
**Yearly Movements in Vegetables Imports (in Tonnes) and WPI Inflation Rate of Vegetables (Base: 2004-05) (1961-62 to 2009-10)**



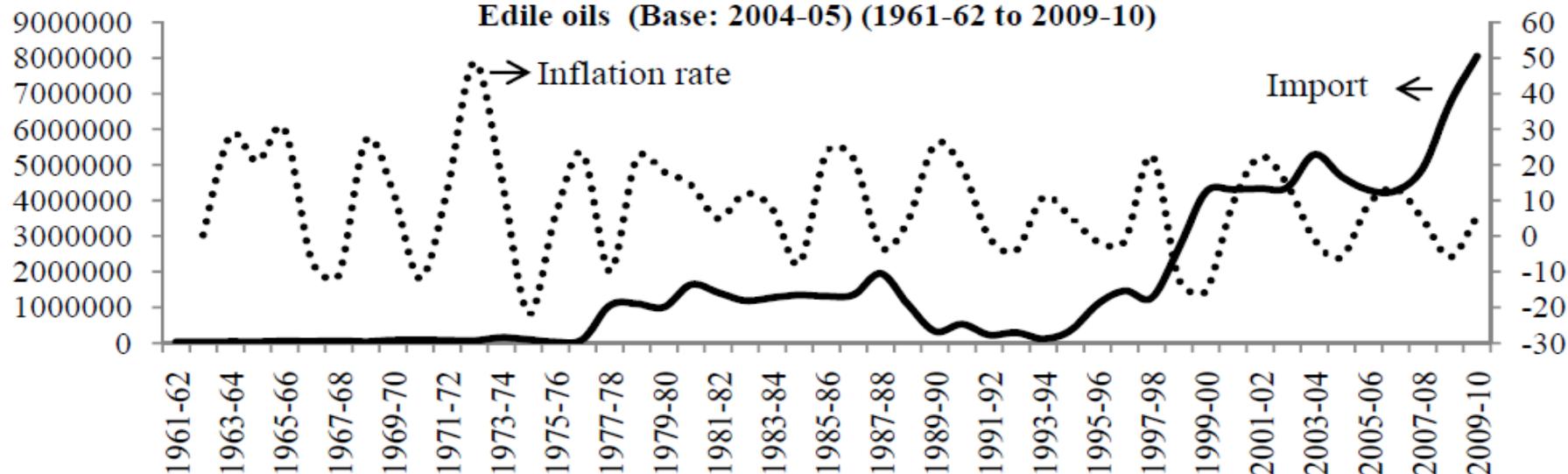
**Yearly Movements in Fruits Imports (in Tonnes) and WPI Inflation Rate of Fruits  
(Base: 2004-05) (1961-62 to 2009-10)**



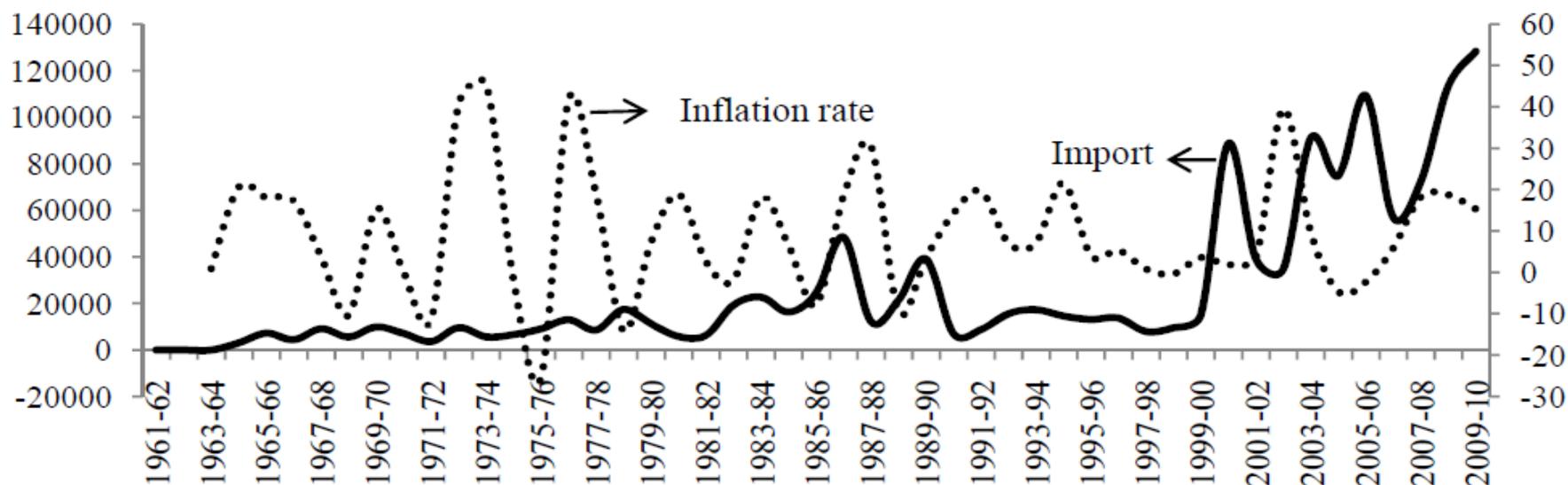
**Yearly Movements in Spices Imports (in Tonnes) and WPI Inflation Rate of Spices  
(Base: 2004-05) (1961-62 to 2009-10)**



**Yearly Movements in Edible Oils Imports (in Tonnes) and WPI Inflation Rate of Edile oils (Base: 2004-05) (1961-62 to 2009-10)**



**Yearly Movements in Oil Cakes Imports (in Tonnes) and WPI Inflation Rate of Oil Cakes (Base: 2004-05) (1961-62 to 2009-10)**



## Summary

- Despite the dismal performance by the farm sector during post-ERs period, **food was cheaper** during this period compared with the initial and maturing stages of GR
- Surprisingly, the **maturing stage of GR** has not turned out to be food price friendly
- In our view, this unexpected outcome could be the result of **three factors**: stable food production, shift in food consumption pattern, and trade liberalisation.

# Policy Implications

- From food inflation point of view, **stability of growth** is more important than **high and fluctuating growth**.
- A combination of **liberal external sector regime** and **stable but not necessarily high agricultural growth and food production** can be helpful to keep food inflation under control.
- At least from an inflation angle, the concerns about the deceleration of agricultural growth during the post-ERs period need to be **revisited**.
- Along with the level of growth we need to focus on **stability of growth**.
- The notion that economic (trade) liberalisation and the consequent strengthening of foreign exchange reserve position have made the government to be **less focused on agricultural self-sufficiency** since 1992 has substance