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Contents

Climate Variability and Agricultural Productivity: An Empirical Assessment of Paddy and Maize in Bihar (1971–2020)

Vikash Kumar[1]

Abstract

India experiences diverse weather conditions throughout the year, with significant climatic variations across regions that influence crop production and quality. This paper investigates the impact of key climatic factors – specifically, rainfall and temperature – on the productivity of paddy and maize in the state of Bihar. The analysis covers a fifty-year period from 1971 to 2020, utilizing data from the Climatic Research Unit (CRU) and the EPWRF India Time Series. A time-series analysis is conducted using the Auto-Regressive Distributed Lag (ARDL) model to examine the relationship between crop productivity and climate change. The findings indicate that the previous year's paddy yield has a significant influence on the current year's yield. Additionally, the results show that the previous year's temperature exerts a significant positive effect on paddy productivity. However, the average temperature and rainfall during the current year do not exhibit a statistically significant impact on paddy yield. Similarly, for maize, the productivity of the first and second lagged periods significantly affects current maize yield. However, the average temperature and rainfall of the current year do not show any significant effect on maize productivity. These results highlight the importance of historical climatic conditions in shaping current crop yields and suggest that short-term climatic fluctuations may have limited immediate effects on paddy and maize productivity in Bihar.

Keywords:

Agriculture productivity, climate change, crop productivity

JEL Code:

Q110, Q150, Q54

INTRODUCTION

The alteration of climatic patterns constitutes a pressing global concern, transcending national boundaries and affecting the entire planet. Climate change, rooted in human activities, poses a profound threat to all life on Earth. As developed nations advanced, they inadvertently exacerbated climate change by intensifying the impact of natural processes. Recognizing the severity of the issue, international efforts led to the establishment of the United Nations Framework on Climate Change (UNFCCC) during the 1992 Rio Summit. The UNFCCC aimed to stabilize greenhouse gas concentrations in the atmosphere to prevent detrimental anthropogenic interference with climate systems (Kaur and Kaur, April 2016-March 2017).

In 1997, the globally coordinated Kyoto Protocol emerged, imposing legally binding emissions targets on developed nations. However, debates persist, particularly concerning the need for additional resources in underdeveloped and developing countries. These complexities compound climate change's multifaceted challenges, encompassing diverse geographical regions such as mountains, coasts, forests, deltas, and deserts. These regions face a spectrum of

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climate-related threats, including glacial melts, rising sea levels, extreme heat waves, droughts, desertification, floods, storms, and the loss of farmlands, grasslands, biodiversity, and marine ecosystems.

A decline in agricultural productivity emerges as one of the most significant casualties of climate change. Temporal considerations become paramount, as historical wisdom underscores the importance of specific seasons for optimal crop yields. Adequate quantities of water, precise temperature ranges, suitable soil compositions, and appropriate timeframes are indispensable for crop productivity. Maintaining the proper balance of these elements is essential to avert issues like reduced production, diminished productivity, and food scarcity.

Given the Earth's escalating population, climate change assumes paramount importance, as its adverse effects reverberate across human life and all aspects of society. According to the Intergovernmental Panel on Climate Change (IPCC), climate change denotes alterations in climate parameters that can be statistically validated through changes in mean values or variability over extended periods, typically spanning a decade or more. IPCC data since the 19th century reveals a 0.74°C increase in the average global surface temperature, with projections suggesting a rise of 1.4°C to 5.8°C by the next century. Similarly, atmospheric concentrations of carbon dioxide, methane and nitrogen dioxide have escalated since 1750, posing further concerns.

India, classified as a developing economy, heavily relies on agriculture, with 46.1% of its population engaged in this sector. As the world's fifth-largest agricultural producer, India occupies a significant position as an agrarian economy. India's diverse climate and geographical locations contribute to its agricultural diversity. Despite its vast agricultural potential, India grapples with two critical issues: food security and climate change, intertwined and influencing each other. Indian agriculture traditionally adheres to natural climate patterns, passed down through generations. However, shifting climate dynamics disrupt these traditional rhythms, negatively impacting productivity.

According to the Department of Agriculture (Government of Bihar), 76% of the state population depends on agriculture, mirrors India's agricultural dependency, albeit at a higher rate. Located in the Indo-Gangetic plain in East India, Bihar boasts a geographic expanse between latitude 24°20'-10'' N ~ 27°31' – 15'' N and longitude 83°19'-50'' E ~ 88°17'-40'' E. Bihar stands as a prominent agricultural state, ranking fourth in vegetable production and eighth in fruit production in India. The state's major cereal crops include rice, wheat, and maize, alongside pulses like arhar, urad, moong, gram, peas, lentils, and khesari.

Bihar's climate, characterized by seasonal variations in rainfall, summer and winter, supports diverse crop cultivation. However, climate change exerts a discernible influence on crop productivity, particularly as Bihar adheres to traditional agricultural practices. This paper determines the impact of climate variables, specifically rainfall and temperature, on agricultural output, focusing on paddy and maize. Additionally, the paper aims to analyze climate change's effects on agricultural productivity in Bihar and propose strategies to enhance the yields of select crops.

LITERATURE REVIEW

Agricultural productivity enhancement has been a consistent goal over centuries, achieved through both practical application and extensive research. Kumar and Gautam (2014) assessed the impact of climate change on Indian agriculture, particularly rainfall, freshwater availability, and temperature trends. They identified 23 significant droughts between 1891 and 2009 and highlighted India's challenge in balancing its vast population with limited water resources. Their findings indicated a substantial decrease in productivity and production with every 1°C increase in temperature (Kumar & Gautam, 2014).

Kaur and Kaur (April 2016-March 2017) employed empirical analysis to investigate the relationship between climate change, temperature (1901-2014), and agricultural production in seven agriculturally rich Indian states. Their results indicated varying impacts, with crops like cotton and wheat showing no significant effect, while rice and sugarcane were adversely affected by climate change. Precipitation positively influenced rice but negatively impacted wheat. Temperature played a significant role in maize and potato productivity (Kaur and Kaur, April 2016-March 2017). Baliarsingh (2017) emphasized the role of greenhouse gases in climate change, leading to irregular rainfall patterns. She highlighted the dire consequences of greenhouse gas emissions, projecting a 1°C increase in average temperature, potentially leading to the extinction of 50% of Earth's species. She discussed India's experience of irregular rainfall in 2017, with a drought followed by floods, reflecting a global pattern of climate change affecting around 150 countries. Some scientists

are developing drought-resistant seeds, although their impact on human health remains uncertain (Baliarsingh, 2017). Khajuria and Ravindranath (2012) focused on India's agriculture, examining the effects of climate change and vulnerability assessment. They projected a significant temperature rise of over 4.2°C by the end of the century under various emissions scenarios. Their work emphasized the challenges faced by poorer countries like India, which struggle to reduce vulnerability due to resource limitations (Khajuria & Ravindranath, 2012).

Jena (2017) conducted an empirical study in Odisha, assessing climate change's impact on food security and agricultural patterns. The study highlighted the state's vulnerability to natural disasters and traditional farming practices. It examined changes in cropping patterns and land use in two districts, Puri and Balangir (Jena, 2017). Das and Mishra (2017) conducted empirical research in Odisha, analyzing data from 1970 to 2014 for seven selected crops. Their findings showed mixed results, with temperature increases affecting crops differently. They noted changing agricultural practices and chemical fertilizer use, which had both positive and negative impacts on life and the environment (Das & Mishra, 2017).

Birthal et al. (2014) synthesized research results from various papers, employing district-level panel data on 19 crops from 1969-70 to 2004-05 in India. Their work highlighted land distribution, with over 85% of land holdings less than 2 hectares, signifying a substantial population dependent on agriculture. Rising temperatures and irregular rainfall trends were noted, with temperature increases negatively impacting crop productivity across kharif and rabi crops (Birthal, et al., 2014). Mahato (2014) distinguished between weather and climate while discussing climate change's impact on agriculture. She argued that anthropogenic activities accelerated climate change, leading to a rapid increase in greenhouse gases and a subsequent rise in mean seasonal temperatures. Mahato emphasized that this accelerated climate change negatively affects crop durability and agricultural productivity (Mahato, 2014). Tesfaye et al. (2017), using baseline weather data (1980-2009) found that rainfall, minimum and maximum temperature and evapotranspiration will rise in near-term (2030) and mid-term (2050) periods that would be the major climate risk for crop production in Bihar (Tesfaye et al., 2017). The literature reveals significant gaps in understanding climate-agriculture dynamics in Bihar, India. While extensive research exists on climate change impacts at national levels, region-specific analyses focusing on Bihar is limited, particularly regarding the long-term effects of historical climate conditions on crop yields. Most studies emphasize immediate climate correlations and overlook lagged effects, with few employing robust models like Auto- Regressive Distributed Lag (ARDL). Additionally, existing research often conflates climatic and socioeconomic factors, hindering precise assessments of climate impacts. Despite Bihar's high vulnerability to climate change, studies fail to systematically connect climatic inertia to effective policy frameworks or evaluate the adoption of climate-resilient agricultural technologies. This study addresses these gaps by examining lagged climatic influences on agricultural productivity over fifty years, providing insights for targeted adaptation strategies and enhancing understanding of crop-specific vulnerabilities in Bihar's agriculture.

STUDY REGION

The area of study is Bihar, a landlocked state of India. The state is surrounded by the states Uttar Pradesh in the west, Jharkhand in the south, West Bengal in the east and Nepal in the north, located in the river plains of the river Ganga in Eastern India. The state has a geographical area of 9,360,000 hectares with three agro-climatic zones: northwest, northeast, and south. Precipitation in Bihar is marked by an annual average of 1053 mm, primarily attributed to the southwest monsoon, which contributes approximately 85% of the total rainfall, while the remaining 15% is influenced by the north-west monsoon, exhibiting variations across the state. Bihar experiences a range of average annual temperatures, subject to seasonal fluctuations. Given its susceptibility to droughts, floods, and fluctuations in rainfall, a comprehensive examination of climate change within the state becomes pertinent, particularly in relation to its implications for agricultural productivity.

DATA AND METHODOLOGY

To analyze the stated objectives of studying climate change's impacts on the yield of paddy and maize necessitates the utilization of two key climate variables: temperature and rainfall, spanning the period from 1971 to 2020. To determine the impact, data pertaining to agricultural productivity (measured in kg/ha) for the specified crops: Paddy and Maize Yield have been sourced from the EPWRF India Time Series as the dependent variables. Meanwhile, the independent variables, encompassing state-level annual rainfall and the average yearly temperature, are derived from the Climatic Research Unit (CRU) TS half-degree grid box dataset.

The present study measures how climate change affects the productivity of two major crops, paddy and maize (in Kg per hectare) in Bihar. Agricultural productivity in kg per hectare is the dependent variable, whereas annual rainfall and average yearly temperature are explanatory (Independent) variables. We proceed with the following process:

Unit Root Test: We proceed with the ADF test to check the stationarity of the taken data.

Lag selection: We have to choose an optimal lag for our analysis, which can be done by minimizing the AIC or SBIC criteria.

Cointegration Test: We cannot use Johansen's Cointegration test or Engle-Granger Cointegration test because all the variables are not stationary at 1stdifference. Since the series are integrated of different orders, i.e., having a combination of I(0) and I(1) orders, we don't proceed ahead with the Johansen cointegration test but rather check for cointegration using the Bounds test.

Auto-Regressive Distributive Lag Model (ARDL): The ARDL Model has been used to estimate the short-term relationship between crop productivity and climate change.

RESULTS AND DISCUSSION

We proceed with the ADF test to check for the stationarity of the data.

Table 1: Results of Stationarity of the Variables

Variables	Stationarity	P-value
Average Annual Temperature	I(0)	0.0005
Average Yearly Rainfall	I(0)	0.0000
Paddy Yield	I(0)	0.2667
	I(1)	0.0000
Maize Yield	I(0)	0.3591
	I(1)	0.0000

Source: Author's estimates

In order to check for the optimal lags for the model, we choose the lag length which gives us the lowest value of the AIC and SBIC criterion.

Table 2: Result for the Optimal Lags for the Average Temperature, Average Rainfall, and Paddy Yield

Lag	p-value	AIC	SBIC
0		23.986	24.106
1	0.000	22.955*	23.432*
2	0.154	23.056	23.894
3	0.011	22.988	24.818
4	0.157	23.094	24.645

*Source: Author's estimates. Note: * represents the lowest values for AIC and SBIC.*

Table 3: Result for the Optimal Lags for the Average Temperature, Average Rainfall, and Maize Yield

Lag	p-value	AIC	SBIC
0		16.304	16.344
1	0.000	14.498	14.577
2	0.000	14.220*	14.340*
3	0.281	14.238	14.398
4	0.638	14.277	14.476

*Source: Author's estimates. Note: * represents the lowest values for AIC and SBIC.*

According to the theory, if the series are integrated of order 0 (stationary in level), then it is not necessary to test for cointegration because any shock to the system in the short run quickly adjusts to the long run. Consequently, only the long-run model should be estimated using OLS (where variables are neither lagged nor differenced).

If the series are integrated of order 1 (stationary after the first difference), then it is necessary to perform a cointegration test. In case the series are found to be cointegrated, the series exhibits a long-run relationship, and if not, the series exhibits a short-run relationship. There are two prominent cointegration tests for the I(1) series: the Engle-Granger cointegration test and the Johansen cointegration test.

Checking for cointegration using the Johansen cointegration test, we find that the independent variables, annual temperature, and rainfall, are integrated of order 0, i.e., stationary in level, but the dependent variables paddy and maize yield are integrated of order 1, i.e., stationary after the first difference. Since the series are integrated of different orders, i.e., having a combination of I(0) and I(1) orders, we don't proceed ahead with the Johansen cointegration test but rather check for cointegration using the Bounds test.

Table 4: Result from the Bounds Test for Cointegration

$$Y_{p_t} = \alpha_0 + \alpha_1 Y_{pt-1} + \alpha_2 T_{t-1} + \alpha_3 T_t + \alpha_4 R_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$Y_{p_t} = -3020.636 + 0.777 Y_{pt-1} + 253.279 T_{t-1} - 130.207 T_t + 0.074 R_t \ldots (2)$$

Dependent Variable	F-Statistic	Cointegration (Yes/ No)	Result
Paddy Yield	F=1.91< critical value for I(0) regressors	No	Estimate ARDL (short-run model)
Maize Yield	F=0.335< critical value for I(0)	No	Estimate ARDL (short-run model)

Source: Author's estimates.

The result from the Bounds test for cointegration shows that the F-value of both the variables Paddy Yield and Maize Yield is less than the critical value for I(0) regressors. As there doesn't exist any cointegration for both the crops, we estimate the Auto-Regressive Distributive Lag Model (ARDL)for Paddy Yield and Maize Yield to check for the short-run impact of temperature and rainfall over the Paddy and Maize Yield. Here, we estimate the ARDL model for the Paddy Yield. From the optimal lag value obtained through lag selection criteria, we arrive at the following regression model: Where, Y_{pt}= Paddy Yield, T_t = Average Temperature, R_t = Average Rainfall

Table 5: The ARDL Results for Paddy

Dependent Variable Y_{pt}	Coefficient (Standard Error)	t-value	p-value
Y_{pt-1}	0.777 (0.967)	8.03	0.000
T_{t-1}	253.279 (135.013)	1.88	0.067
T_t	-130.207 (144.33)	-0.90	0.372
R_t	2.074 (3.524)	0.59	0.559

Source: Author's estimates.

From equation (2), we can see that the previous year's Paddy yield significantly impacts the current year's yield. Furthermore, the results reveal that the previous year's temperature had a significant positive impact on the yield of paddy crops. However, the average temperature and rainfall in the current time period don't have a significant impact on the yield of paddy.

Similarly, we estimate the ARDL model for the Maize Yield. From the optimal lag value obtained through lag selection criteria, we arrive at the following regression model:

$$Y_{mt} = \beta_0 + \beta_1 Y_{mt-1} + \beta_2 Y_{mt-2} + \beta_3 T_t + \beta_4 R_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

$$Y_{mt} = -235.70 + 0.477 Y_{mt-1} + 0.475 Y_{mt-2} + 11.511 T_t + 1.147 R_t \ldots\ldots\ldots\ldots (4)$$

Where, Ymt= Maize Yield, Tt = Average Temperature, Rt = Average Rainfall

Table 6: The ARDL Results for Maize

Dependent Variable Y_{mt}	Coefficient (Standard Error)	t-value	p-value
Y_{mt-1}	0.477 (0.130)	3.67	0.001
Y_{mt-2}	0.475 (0.128)	3.71	0.001
T_t	11.511 (128.208)	0.09	0.929
R_t	1.147 (3.610)	0.32	0.752

Source: Author's estimates.

From equation (4), we can see that both the first and second time period lag values of maize productivity have a significant impact on the yield of maize. However, both the average temperature and the average rainfall of the current year don't have an impact on the current year's yield of maize.

ADAPTATION AND MITIGATION STRATEGIES

Climate change is a complex phenomenon, primarily driven by natural processes, yet influenced to some extent by human activities, notably the emission of greenhouse gases. These gases elevate environmental temperatures and accelerate the pace of climate change. While climate change cannot be precisely predicted, it is essential to address its adverse consequences through both mitigation and adaptation strategies.

Mitigation strategies focus on long-term efforts to reduce global warming and limit its impact. However, they do not directly alter the inherent climatic changes within a

short timeframe. Mitigation strategies include:

(i) Enhancing energy efficiency.

(ii) Promoting the use of renewable energy sources.

(iii) Innovating in electric public transport and encouraging bicycle use.

(iv) Managing livestock populations, including poultry, more effectively.

(v) Advocating for the conservation agricultural practices and the use of bio fertilizers.

Adaptation to climate change involves adjusting ecological, social, and economic systems in response to observed or anticipated variations in climate variables and their associated impacts. This approach aims to prepare communities, regions, countries, and societies to mitigate the harmful effects of climate change and harness potential opportunities. Some key adaptation strategies include:

(i) Developing new plant genotypes and hybrid crops adaptable to climate variability.

(ii) Promoting integrated farming system models.

(iii) Expanding agricultural insurance coverage for vulnerable areas.

(iv) Supplying incentives to farmers for resource conservation and efficiency.

(v) Implementing resource conservation and adaptation technologies.

(vi) Using seasonal weather forecasts for optimized planting and irrigation.

(vii) Establishing floodwater diversion channels for irrigation.

(viii) Adopting soil conservation measures.

(ix) Providing education and information on climate change's impact on agriculture.

(x) Creating rainwater conservation points.

(xi) Allocating additional funds for research to enhance agricultural adaptation and mitigation.

(xii) Fostering community participation in climate resilience efforts.

(xiii) Raising awareness among farmers about productivity-boosting technologies.

CONCLUSION

Climate change emerges as a consequence of global warming, manifesting its effects on a global scale. Climate, being the primary determinant, significantly shapes agricultural productivity, thereby directly impacting global food security. The agricultural sector stands out as profoundly susceptible to climate change due to its dependence on regional climate conditions, which dictate crop characteristics. Variations in seasonal temperatures detrimentally affect crop yields. The overall impact on food security hinges upon the region's vulnerability to global environmental changes and its ability to adapt and recover from such transformations. Addressing the repercussions of climate change on agriculture necessitates meticulous management of crucial resources such as soil, water, and biodiversity. Effectively mitigating the impact of climate change on agriculture and ensuring food production resilience demands concerted action at the global, regional, national, and local levels.

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Wage–Salary Differentials in the Indian Food Processing Industry since 1980s: A Disaggregated Analysis

Jai Ram Meena[1] and Swaran Lata Meena[2]

Abstract

This study examines whether the wage–salary structure of the Indian food processing industry has undergone changes since 1981. To do so, data on wages of production workers and salaries of skilled employees were sourced from the Annual Survey of Industries. The data has been deflated and concorded using appropriate deflators and concordance, respectively. To trace the differentials and structural changes in average wage and average salary, graphical and time trend growth rate methods were used. The findings indicate that the industry has experienced significant structural changes in wage–salary differentials since 1981. The salaries paid to skilled employees have grown much faster than the wages paid to production workers. Indeed, the wage–salary gap widened over the study period, specifically, the post-reform period. Additionally, skilled employees remain closely linked to faster adoption of technology and productivity growth, indicating an increasing intensity of capital and technological improvements. It suggests that food processors and policymakers must plan well-coordinated application of labour, capital and technology in food processing operations so that India can keep up with the growing demand for processed food products in domestic and export markets.

Keywords:

Food processing, wage–salary differential, wage–salary structure

JEL Code:
J31, J380, J390, L66

INTRODUCTION

Food processing, a *sui generis* industry, is an integral part of the secondary sector of the Indian economy, involving the processing, preserving and manufacturing of food products. It includes processing and preserving of meat, fish, fruits and vegetables, and manufacturing of vegetable and animal oils, fats, dairy, grain milling, starch, prepared animal feeds, beverages and other manufactured food products. Although the roots of food processing in India are historical, its growth and development have occurred dynamically and quickly since the Green Revolution of the 1960s and the White Revolution of the 1970s, specifically since 1991, when economic reforms were gradually being adopted. The 11th Five-Year Plan (2007–2012) of the Planning Commission of India identified food processing as one of the 20 high-growth sectors of the Indian economy. Recognising it as a rapidly growing and highly labour-intensive industry, an action plan to promote the growth of this industry was also proposed (Rao and Dasgupta, 2009). However, a brief overview of the status, significance, challenges and prospects of the Indian food processing industry (IFPI) is provided below.

IFPI significantly contributes to output, employment, exports and investments. It is ranked as India's fifth-largest industry in the context of output, consumption

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and exports. As per the 73rd round of NSSO (2015–16) and the Annual Survey of Industries–ASI (2022–23), IFPI is composed of 25 lakh informal units and 42,804 registered firms, providing employment to 51.1 lakh and 20.7 lakh persons, respectively, with micro-processing units dominating the landscape. India's processed food exports shared 10.9% and 22.6% of its total exports and agricultural exports, respectively, in 2021–22. India has experienced steady growth in its exports, sharing 2.48% of food exports in the world, 18.3% of the gross value added of agriculture and allied sectors, and 11.44% of employment in the organised manufacturing sector during 2022–23. The projected CAGR during 2022–27 is 7.3%. The market size of this industry in 2022 was USD 866 billion, which is projected to be USD 1274 billion in 2027 (Grant Thornton, 2024). Das and Biswas (2021) and Saxena et al. (2023) indicate that IFPI has contributed positively to India's GDP growth and job creation, attracting substantial domestic and international investments. IFPI is the 15th largest industry of the Indian economy receiving FDI inflows. Under the automatic route, it can receive 100% FDI, while under the government approval route, FDI is permitted up to 100% for trading in food products manufactured in India, including through e-commerce. It received an FDI equity inflow of USD 12.81 billion from January 2000 to June 2024. The leading foreign investors in IFPI are Unilever, Nestle, Britannia, Kraft, Mars, Donone, Ferrero, Del Monte, Kellogg's, etc.

IFPI supports the availability of employment, food supply, farmers' income and exports. It plays a quintessential role in drawing connections between farmers and consumers in domestic and export markets. Food processing has strong backward linkages with agriculture; therefore, development of food processing creates derived demand for agricultural production (Gopinath et al., 1996; Kalirajan and Bhide, 2007; Baliyan et al., 2015; Kinkpe et al., 2023). Since IFPI sources material inputs primarily from domestic agriculture, its growth is crucially significant for Indian agriculture. In 2022, the total inputs consumed by IFPI consisted of primary inputs, with value added making up 10% and intermediate inputs making up the remaining 90%. A significant 44% of the total inputs were acquired from agriculture, with food processing itself contributing 16% and imports accounting for 7%. This composition of total inputs consumed by IFPI demonstrates that it has strong backward linkages with agriculture. However, food processing is significant for addressing critical issues related to food security, food inflation and nutrition. Joseph and Mannen (2022) stated that diverse raw material base, cost competitiveness and modern technology are the sources of India's comparative advantage in food processing. Das and Biswas (2021) highlighted the present and prospective role of IFPI in the Indian economy. Additionally, Chengappa (2004), Kachru (2010) and Vrat (2018) stated that food processing has a huge scope in India in terms of growth, value addition, trade, employment creation and reduction in food wastage. The output of this industry is expected to reach $535 billion by 2025–26. However, it offers critical insights for growth and development of the Indian economy. Therefore, it is considered a significant economic pillar of the Indian economy.

Numerous demand drivers exist for processed food products in India, such as a higher income elasticity of processed food products, growing population, urbanisation, increasing prosperity, organised retailing, diversifying diets from staples to processed food products, fast-growing economy, social changes (viz. growing nuclear families and working women), etc. Mottaleb and Mishra (2022), using NSSO data (1990–91 to 2011–12), identified growth in total expenditure and rapid urbanisation as the primary drivers of growth in the demand for processed foods in India. Also, Morriset and Kumar (2011) found an increasing demand for value-added food products in India. All the above factors support the domestic demand for processed foods in India. The potential for expanding exports is also present. According to Jafee and Gordon (1993), a sizable domestic market is essential for augmenting processed food exports. One of the five factors of Porter Diamond Model (Porter, 1990) states that domestic demand is a driving force for specialization and innovation in the industry. Although IFPI is in the nascent stage, it is gaining importance continuously with an increase in the global food trade (Agarwal and Neogi, 2017). On the supply side also, India has enormous potential because of its agro-climatic conditions, production capabilities, abundant supply of labour, supportive public policy, proximality to processed food importing economies, etc. Evolving food science, internet and new food technologies are opening up buyer- and producer-driven growth opportunities for the processed food industry. The availability of new food processing technologies is capable of improving value addition, waste reduction, product development, product diversification, preservation, etc. In addition, advancing internet technologies offer ample scope for the growth of demand for processed foods in the market. Therefore, the coexistence of high growth opportunities for India's processed food products in both domestic and export markets, and advancing technologies indicates promising

business prospects for this industry and a positive outlook for the future. However, IFPI stakeholders are optimistic about the unexplored potential of growth in output, domestic demand, employment and exports. Amongst others, it is being seen as a sector to provide the fuel for the next wave of economic growth in India. Next, the low level of processing, poor infrastructure, limited access to credit, poor supply chain management, low rate of technology adaptation and complex regulatory systems are the main challenges before this industry. The low level of processing is one of the greatest challenges before this industry. The irony is that India, despite having abundant supply of raw materials and labour, faces the problem of low processing rates, which is one of its greatest challenges before this industry (Grover et al., 2020).

To understand the internationally comparable structural frame of IFPI, it is important to be familiar with its sub-sectors. As per the 4-digit level National Industrial Classification–2008 (NIC–2008) of manufactured products, IFPI consists of 18 sub-sectors, which can be consolidated into 13 by grouping together those with similar characteristics in terms of the nature of their products. Table 1 lists all 13 sub-sectors, with the first 3 relating to processing and preservation, and the remaining 10 to manufacturing of processed food products.

Table 1: Sub-sectors of the Indian Food Processing Industry (Based on NIC–2008)

Industry Code (NIC–2008)	Activity	Sub-sector/Sub-industry/ Industry Group
1010	Processing & preservation	Meat & Meat Products
1020	Processing & preservation	Seafoods
1030	Processing & preservation	Fruits & Vegetables
1040	Manufacturing	Edible Oil & Fats
1050	Manufacturing	Dairy Products
1061	Manufacturing	Grain Mill Products (cereal preparation)
1062	Manufacturing	Starch & Starch Products
1071	Manufacturing	Bakery Products
1072	Manufacturing	Sugar
1073	Manufacturing	Cocoa, Chocolate & Sugar Confectionery
1074+1075+1079	Manufacturing	Other Food Products
1080	Manufacturing	Prepared Animal Feeds
1101+1102+1103+1104	Manufacturing	Beverages

Source: National Industrial Classification–2008, CSO (MOSPI), New Delhi.

However, the present economic trends show that IFPI is a significant and potential industrial sector of the Indian economy today. Against this backdrop of status, significance, challenges and prospects of this industry, the study of IFPI seems inevitable. The remainder of this study consists of the review of literature on the subject, the objectives of the study, the data and methodology and the results and discussion, followed by the conclusions.

LITERATURE REVIEW

Since previous literary works on the subject help identify research gaps, this section presents a comprehensive review of the literature on the subject under consideration. Kalirajan and Bhide (2007), Ali et al. (2009), Ohlan (2013), Baliyan et al. (2015), Biswas et al. (2015), Bhandari and Vipin (2016), Jabeen (2019), and Devi and Chandel (2022) investigated the productive performance of IFPI with different data sets, methodologies, performance measures, levels of aggregation and time periods. Kalirajan and Bhide (2007) explained the technical efficiency (TE) performance of IFPI and its nexus with growth in agriculture. Ali et al. (2009), employing a non-parametric methodology with ASI data, analysed TE and changes in TE from 1980–1981 to 2001–2002, identifying its causes in resource utilisation at the sub-sector level. Baliyan et al. (2015) concluded that capital investments in the industry significantly increased post-liberalisation, emphasising the need for sustainable productivity growth in agriculture. Ohlan (2013) and Devi & Chandel (2022) estimated the TE and TFP of India's dairy sector for the period 1980–2008 and 1993-2017, respectively. Biswas et al. (2015) studied the dynamics of the structure, innovation

and growth of IFPI during 2000–2010. Bhandari and Vipin (2016), using the Centre for Monitoring the Indian Economy (CMIE) database, analysed the performance of 105 IFPI companies for the period 2000–2015. Jabeen (2019) non-parametrically estimated TE as well as TFP growth during 2005–2015 in IFPI and found that 35% of its firms were operating inefficiently. Despite methodological variations, these studies offer valuable insights into the productive performance dynamics of IFPI across different contexts, such as sub-sectoral differentials in productive performance and their implications. They also reveal sub-period-wise differentials in productive performance, specifically during pre- and post-economic reforms.

Kumar and Basu (2008), utilising firm-level data from CMIE for the period 1988–1989 to 2004–2005, diagnosed the untapped potential of IFPI caused by the coexistence of low technological progress and increasing inefficiencies. It recommends promoting imports, and research and development (R&D) to boost technological progress and instituting changes to reduce inefficiency. Akram et al. (2023) employed a parametric half-normal stochastic frontier analysis with panel data from 2000–01 to 2017–18. They estimated TE to be 86.6%, output growth to be 5.5% and input growth to be 5.7%, attributing output growth mainly to input-driven factors rather than technology or efficiency upgrades. They noted non-constant returns-to-scale (non-CRS), indicating the presence of inefficiency in this industry.

Sidhu (2005) and Ray (2012) assessed the productive performance of the Indian fruits and vegetables and sugar sub-sectors of IFPI, respectively, in terms of the rate of capacity utilisation. Sidhu (2005) traced low rates of capacity utilisation and commercial processing in the fruit and vegetable industry. Ray (2012) found considerable fluctuations in capacity utilisation rates over the years within the sugar sector from 1979–80 to 2008 and that the growth rates diminished after reforms. Additionally, it showed that liberalisation has a detrimental effect on the economic capacity utilisation of the sugar sector. Jabeen (2019) identified differentials in the rate of utilisation of raw materials as the major source of variation in inefficiency among the food-processing industries in India. Kumar (2010), using various financial ratios, analysed the financial performance of the IFPI in the organised sector. Tripathy and Shaik (2019) found leverage to be significantly and positively associated with the financial performance of 56 BSE-listed Indian food processing firms from 2000 to 2018. This result aligns with the pecking order theory and the static trade-off theory. According to the pecking order theory, firms prefer internal sources over external sources of financing. Alternatively, the static trade-off theory states that the value of any two firms depends on their expected future earnings, not on their choice of financing sources. Nithyashree and Pal (2020) studied IFPI's financial performance, investment and job opportunities from 1980 to 2018, and found a significant increase in capital intensity and high investment growth rates from 2004–05 to 2017–18. Despite increased investment, certain business performance measures were low, which discouraged investors. Hence, they suggested focusing on high-value products and expanding the grain industry to absorb surplus labour.

Khosla (2019) revealed that technological advancement in IFPI led to output growth and productivity growth but at the cost of labour displacement. Pal and Chakraborty (2022) examined the output growth performance of IFPI in India from 1980–1981 to 2017–2018, identifying a structural break in 2007–2008 that led to increased growth. Factors influencing output growth were firm size, mechanisation, workforce composition, wage rates and export intensity. Padmavathi (2019), using the 67th Round of NSS (2010–11) and the 73rd Round of NSS (2015–16), examined the structure, composition and inter-state disparities in IFPI under the unorganised sector, concluding that food manufacturing enterprises are highly labour intensive. In urban India, it is structurally transforming from an establishment into a self-owned enterprise. Kumar (2010), along with financial performance, analysed the structure of IFPI in the organised sector. Sidhu (2005) identified challenges such as low demand and existing food habits. Ebenezer and Savitha (2023) analysed the gross value added, revenue and FDI performance of IFPI in India's current scenario. Padhi (2022) noted that IFPI lacks specialized job opportunities. The paper highlights four key points: the importance of human talent in FDI decisions, the potential of technical advancements to attract investment, considering the broader benefits of specialized employment beyond just wages and the necessity of developing domestic capabilities to support FDI in manufacturing. Das and Biswas (2021) highlighted

the role and prospects of food processing in the Indian economy. Finally, Singh et al. (2021) employed Delphi analysis to identify the primary obstacles hindering growth of IFPI.

Upon further review of the literature, it is apparent that there has been substantial research on productive performance, growth performance, financial performance, general structure and many other aspects of the processed food industry in India. However, to the best of our knowledge, there appears to be a lack of research on the wage–salary structure of this industry. Therefore, this study aims to address this research gap by examining the changing wage–salary structure of the industry. The study anticipates that analysing the changing wage–salary structure will offer insights into the evolving dynamics of labour structure; skill distribution and skill returns within this industry.

OBJECTIVES OF THE STUDY

The basic research questions are whether there have been any changes in the wage–salary structure of IFPI, and whether these changes have some association with the process of economic reforms in the Indian economy since 1991. To address these questions, the objective of this study is to (a) investigate whether IFPI experienced changes in the wage–salary structure during 1981–2017; and (b) determine if the wage–salary structure differed between the pre- and post-economic reforms of 1981–1990 and 1991–2017, respectively.

DATA AND METHODOLOGY

This study uses panel data sourced from ASI (1981–2017), which has provided industrial statistics for organised sector manufacturing industries in India since 1959. There are different frameworks for classifying/grouping processed food segments. The ASI data follows the classification of the processed food products provided in NIC–1970, 1987, 1998, 2004 and 2008. To maintain parity between the different NICs applicable to this study, we concorded all of the above NICs wherever necessary, as per the concordance provided by Kumar (2010). The study constructed variables such as average wages for production workers (AW) and average salaries for non-production workers (AS) in IFPI. The wages and salaries were adjusted for inflation using the Consumer Price Index for Industrial Workers (CPI–IW). With respect to methodology, to trace whether the wage–salary structure of IFPI changed during the study period, this study employed a graphical method as well as time trend growth curves in AW and AS. Novelties of this work include the use of a 4-digit level product classification of processed foods for a sufficiently longer period of time, and the use of different parameters for capturing the changes in the wage-salary structure of the industry under assessment.

RESULTS AND DISCUSSION

This section of the paper addresses the objectives of the study– first, whether IFPI experienced changes in the wage–salary structure during 1981–2017, and second, whether the wage–salary structure differed between the pre- and post-economic reforms of 1981–1990 and 1991–2017. Figure 1 depicts the changing dynamics of wages and salaries in the IFPI since 1981. From Figure 1, it is apparent that in IFPI as a whole, the growth in AS paid to employees other than workers (i.e., supervisory and managerial staff, including other employees, hereafter, skilled workers) was much faster than the AW paid to workers, including contract workers (hereafter, production workers) throughout the period of analysis. Indeed, during this period, AS grew exponentially (while AW grew only moderately (0.839). Consequently, the wage–salary differential in IFPI between production workers and skilled workers widened over the study period, as is visualised in Figure 1. Specifically, the wage–salary differential has grown increasingly larger since 1991-92. During the 1980s, the wage–salary differential was, by and large, low and stable.

Now, to have an idea of the dynamics of the wage–salary structure of IFPI at the sub-sectoral level, we need to look at Figures 2 to 14. Table 2 presents the best trend growth in AW and AS with respective coefficients of determination (R^2) in all 13 sub-sectors of IFPI during 1981–2017. By comparing the sub-sector-wise trend growth in AW and AS, we can determine what happened with the wage–salary differential in a particular sub-sector of IFPI. The growth in AS was undoubtedly faster than in AW in all sub-sectors of IFPI during 1981–2017. For example, in meat and meat products (NIC Code–1010), AW observed a moderate growth trend, while AS observed a power growth trend (R^2=*0.646*), which signify

that the AS and AW differential increased in meat and meat products during 1981–2017. In some sub-sectors, AS and AW growth trends were of a similar nature, but the significance level was much higher for growth in AS compared to growth in AW. Out of 13 sub-sectors, 7 experienced a significant and higher rate of growth in AS compared to their respective AW during this period. However, it needs to be noted that the AS–AW differential in most sub-sectors has been geared up since the early 1990s, implying that the wage–salary differential has been impacted and enlarged by the process of new economic reforms undertaken in the Indian economy, specifically in the manufacturing sector.

Table 2: Time Trend Growth in Average Wages and Salaries (1981–2017)

Industry/Sub-Industry	Average Wage (AW)	R^2	Average Salary (AS)	R^2	Gap (AS-AW)
1010	Moderate growth	0.193	Power growth	0.646	Increased
1020	Linear growth	0.827	Polynomial growth	0.912	Increased
1030	Polynomial growth	0.870	Polynomial growth	0.942	Increased
1040	Polynomial growth	0.843	Exponential growth	0.901	Increased
1050	Polynomial growth	0.563	Exponential growth	0.979	Increased
1061	Polynomial growth	0.935	Exponential growth	0.940	Increased
1062	Polynomial growth	0.765	Polynomial growth	0.891	Increased
1071	Moving average	NA	Exponential growth	0.812	Increased
1072	Linear growth	0.839	Polynomial growth	0.909	Increased
1073	Linear growth	0.762	Exponential growth	0.882	Increased
1074+1075 +1079	Polynomial growth	0.881	Polynomial growth	0.937	Increased
1080	Polynomial growth	0.786	Exponential growth	0.918	Increased
1101+1102 +1103+1104	Polynomial growth	0.789	Exponential growth	0.948	Increased
1010-1104 (IFPI)	**Moderate Growth**	**0.8387**	**Exponential Growth**	**0.9695**	**Increased**

Source: Authors' estimates from ASI Data (1981–2017)

Based on this information on wages and salaries in IFPI extracted from the data witnessed through Figure 1 to 14 and Table 2, it may be concluded that IFPI experienced significant changes in workforce composition over the study period. Further, this structural change in the workforce employed in IFPI and its sub-sectors has led to dynamic changes in the distribution of skills, returns to skills and employment profile of this industry. This implicitly shows skill acquisition, enhancement in productivity and/or efficiency performance of IFPI, signalling an overall integration of the industry over time. In other words, as the composition of the workforce shifts towards more skilled employees, a productive entity (here, IFPI) integrates it by efficiently coordinating and consolidating the various stages and processes involved in producing, processing, distributing and even exporting its products. Consequently, IFPI aligns with the leading manufacturing sectors of the Indian economy.

Furthermore, Rao and Dasgupta (2009) found that the AW in Indian food processing activities was lower than that in agriculture. This is contrary to the general belief that non-farm wages are always higher than farm wages.

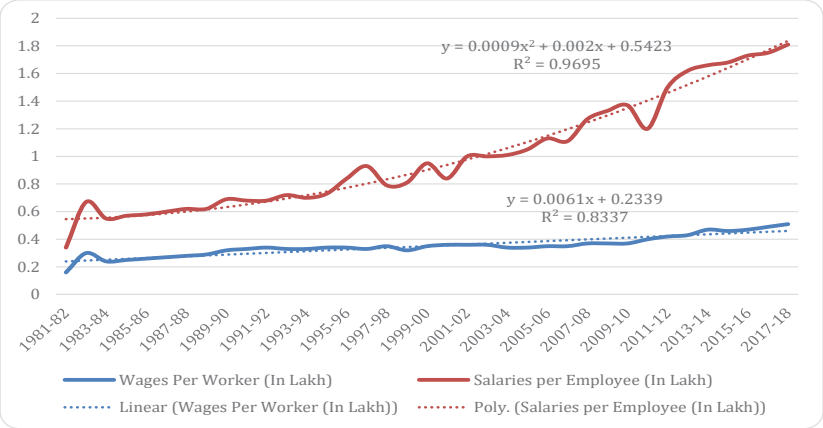
There may be many institutional and non-institutional reasons for differences in wages and salaries in manufacturing firms and industries, such as low productivity of labour, technological advancements, state policies that favour capital, easy substitution of capital for labour, ample supply of workers, lack of alternative job opportunities, lack of skills, concentration of firms, etc. These factors play a significant role in determining wage-salary differentials. Ganguly and Sasmal (2023) noted that AW in labour-intensive manufacturing industries in India was lower than in capital-intensive counterparts. Rais et al. (2013) stated that the food processing industry's labour force is largely unskilled, with 80% having an educational level below the 10th standard. Therefore, as

a labour-intensive manufacturing industry, IFPI may have wage-salary differentials. In order to raise wages in the organised food processing industries, policymakers should integrate the organised and unorganized food processing sectors. This integration can improve the movement of production workers between the organised and unorganised sectors, potentially leading to higher wages in both sectors. Additionally, it will allow unorganised sector workers to work alongside more skilled workers. Consequently, the wage-salary differentials are expected to reduce among the production and non-production workers in the industries.

CONCLUSION

India's food processing industry is a significant and prospective industry of the Indian economy. This study concludes that during the period investigated, this industry experienced significant structural changes in terms of wage–salary structures. The salaries paid to skilled employees have increased at a much faster rate than the wages paid to production workers. Indeed, their gap has widened over the study period, specifically the post-reform period. In this regard, all 13 sub-sectors were on the same page. Additionally, skilled employees remain closely linked to faster adoption of technology and productivity growth, indicating an increasing intensity of capital and technological improvements. This suggests that food processors and policymakers need to adopt coherent applications of labour, capital and technology in food processing operations, specifically physical processing technologies so they can follow the growing demand for Indian processed food products in the domestic and export markets.

Figure (1): Wage-Salary Differentials in IFPI (1981-82 to 2017-18)



Note: Data compiled from the Annual Survey of Industries.

Figure 2: Meat Products (NIC- 1010)

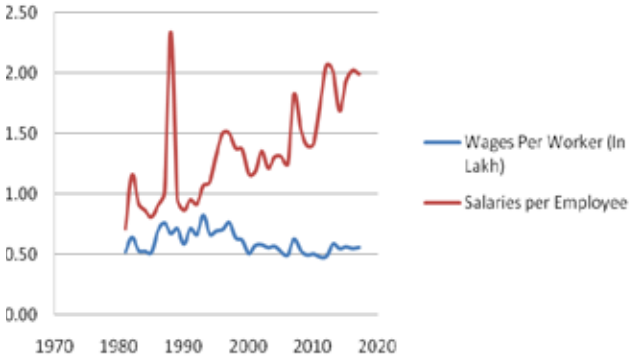


Figure 3: Seafoods (NIC-1020)

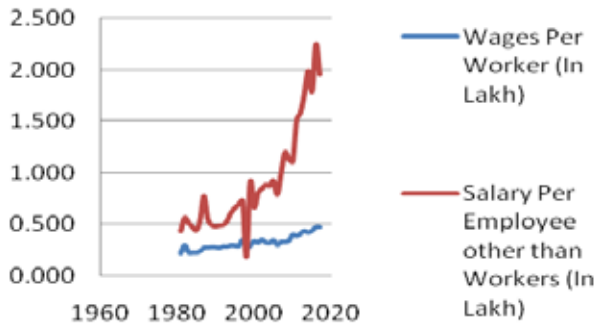


Figure 4: Fruits & Vegetables (NIC-1030)

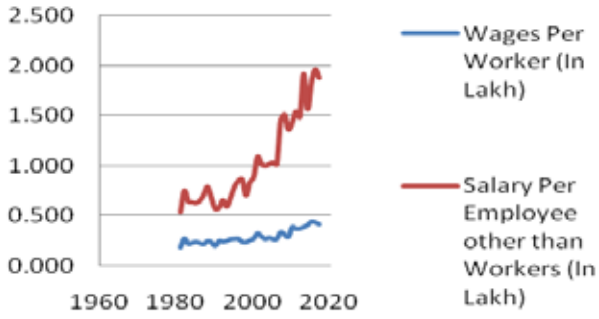


Figure 5: Edible Oil & Fats (NIC-1040)

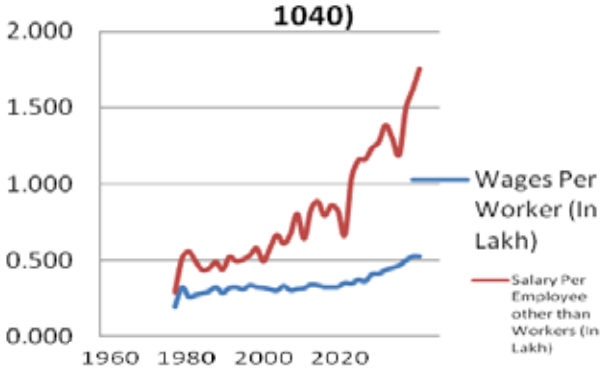


Figure 6: Dairy Products (NIC-1050)

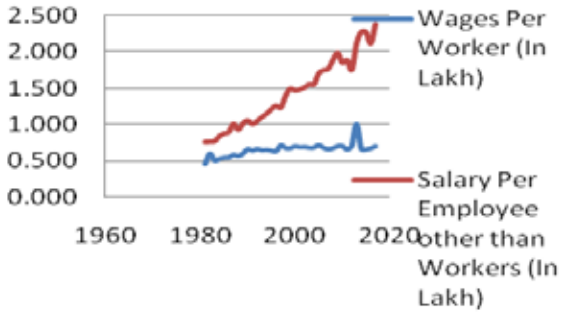


Figure 7: Grain Mill Products (NIC- 1061)

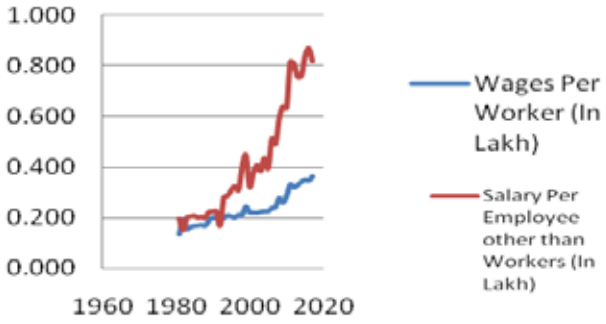


Figure 8: Starch Products (NIC-1062)

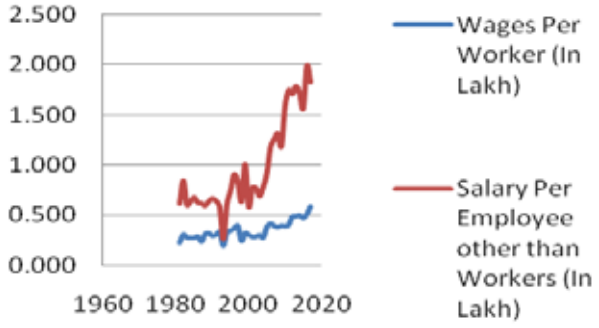


Figure 9: Bakery Products (1071)

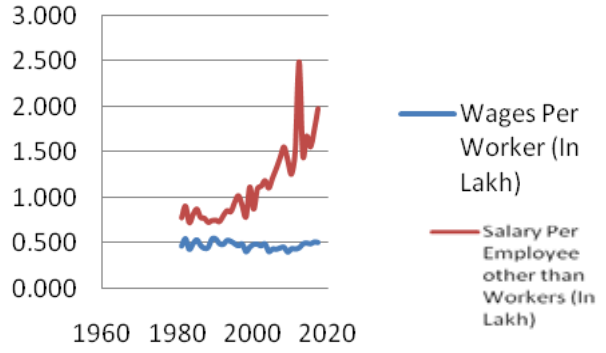


Figure 10: Manufactured Sugar (NIC-1072)

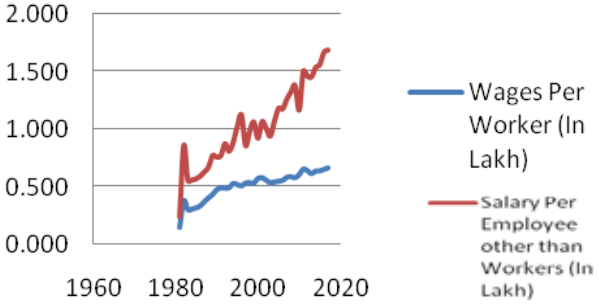


Figure 11: Confectionary (NIC- 1073)

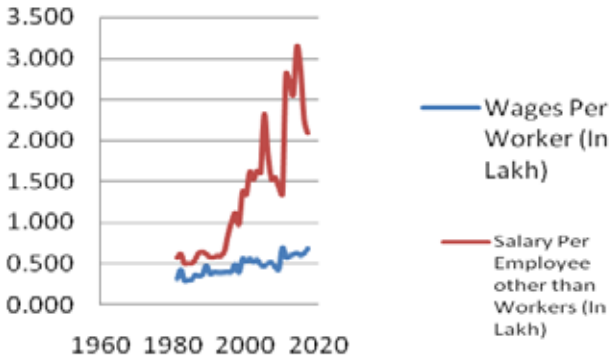


Figure 12: Other Food Products (NIC-1074+1075+1079)

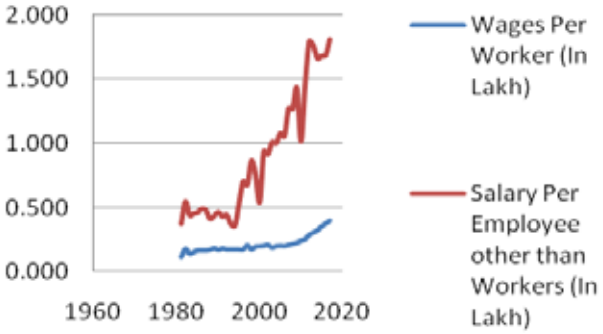


Figure 13: Prepared Animal Feeds (NIC-1080)

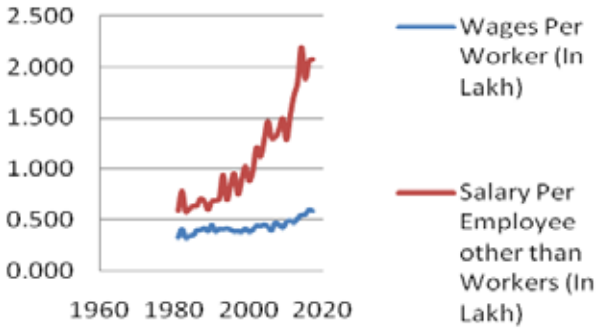
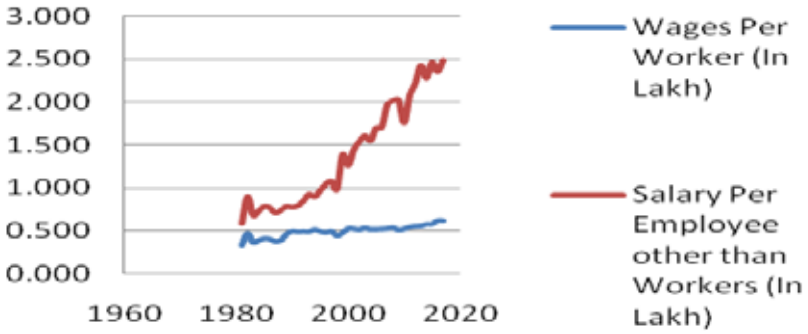


Figure 14: Beverages (NIC-1101+1102+1103+1104)



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Relationship between Economic Growth and Insurance: Literacy Evidence

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Abstract

Financial institutions are considered to be an essential part of every nation's plan for sustained economic progress. In the vast corpus of economic literature, the correlation between financial growth & economic development has been thoroughly examined and established. However, most of the literature has limited their study majorly to the banking and capital markets without much consideration of the insurance industry. The insurance industry has witnessed faster growth in the last decades, especially in emerging markets owing to financial liberalization. Insurance supports economic growth by majorly converting savings into investments and issuing insurance policies. Furthermore, insurance is viewed as a supplement to the banking system and a growth engine that advances the nation's financial development and also promotes financial stability. The role of the insurance market as a source of risk transfer, financial mediator, & indemnity provider can all help economic growth by facilitating more effective risk management. Consequently, the role that insurance plays in growth has been emphasized by a number of recent studies that examine the causal relationship between insurance and economic growth. This paper's goal is to review the empirical research looking at the relationship between insurance & economic growth. The purpose of this research is to better understand how insurance and economic growth is related to each other.

Keywords:

Insurance, financial development, economic growth, insurance-economic nexus

JEL Code:
G22, O40

INTRODUCTION

Financial institutions are essential to long-term, steady economic expansion. Economic growth and financial development are intimately related, making financial development crucial for every nation. These institutions, mainly banks, capital markets, and insurance institutions as risk transfer entities have helped in avoiding economic loss as they smooth out the economic volatility. A robust and efficient financial system leads to increased productivity which in response leads to economic growth. The financial sector is responsible for guiding savers' funds into investment initiatives and the other way around. Through economies of scale and specialization, the financial industry lowers the cost of capital, enhances resource allocation, mobilizes savings, and offers liquidity & risk management (Scholtens and van Wensveen, 2003; Wachtel, 2001).

The financial sector's contribution to economic growth and development has been examined and widely recognized in the vast economic literature. Various empirical data and research studies have demonstrated that a well-developed financial system leads to a higher growth rate (Hass and Sumegi, 2008). Jung

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(1986) established the link between financial development and economic growth with his groundbreaking research. Levine had contributed to this field of research to a great extent. King & Levine (1993), for instance, show a significant positive association between these variables by establishing the relationship between bank development and economic growth. Using various econometric methods for robust investigations, Levine (1999), Beck et al. (2000), Rousseau & Wachtel (1998), Levine et al. (2000), and others have further corroborated this finding. Granger causality tests by Fink et al. (2005) have been used to identify the impact of financial markets on economic growth in various countries. Accordingly, research on this subject has seemed to accept the theory that financial development is essential to economic expansion. Nevertheless, the bulk of these studies have given little thought to the insurance sector in favour of analysing the significance of the relationship between economic growth and banking and/or capital markets.

The traditional perspective on insurance holds that it is a crucial tool for indemnity, intermediation, and risk transfer (Outreville, 1990). The insurance sector is often categorised as life insurance, which stands for long-term funds; non-life insurance, which stands for short-term finances; and; reinsurance, which shields the insurance businesses. All these insurance types' enable risk effective risk transfer and management. A country's ability to succeed economically depends on insurance, just like it does on other financial institutions like banks and the capital market.

Insurance is not a new concept and has been in existence since ancient times as a risk transfer entity. Insurance is believed to enhance the financial advancement of the country by working as a complementary to the banking sector (Grace and Rebello, 1993). In addition to providing risk transfer and indemnity, insurance as a financial service also makes financial intermediation easier (Ward and Zurbruegg, 2000). By facilitating more effective risk management in its roles as a financial mediator, risk transfer provider, and indemnity provider, the insurance market can support economic growth. The United Nations Conference on Trade and Development (UNCTAD) formally recognized that "a sound national insurance and reinsurance market is an essential characteristic of economic growth" during its inaugural session in 1964, demonstrating how crucial insurance is to the trade and development matrix.

Insurance aids in the nation's economic growth by providing insurance policies and effectively converting savings into funds for actual investment initiatives. The stability of the country's insurance is nothing but a sign of economic growth (Outreville, 1990; 1996). Skipper's (1997) study discussed how insurance aids in economic growth in various ways. More specifically, insurance can aid in the following areas: it can help with trade and commerce; it can mobilize savings; it can enable more effective risk management; it can promote loss mitigation; it can facilitate efficient capital allocation; and it can either supplement or replace government security programs. The other two primary justifications offered by Ward and Zurbruegg (2000) for the importance of insurance to economic growth are the advantages that arise from the insurance company serving as an agent for risk transfer and indemnity as well as the advantages that come from the insurer serving as a financial intermediary.

Insurance is an important component of financial development that contributes to the economy in various aspects by; guaranteeing monetary stability for businesses and people; encouraging the growth of fresh capital and more effective distribution; mobilizing and directing savings toward investment opportunities; and promoting business and trade (Das et al., 2003). Apergis and Poufinas (2020) in their study maintain that insurance aids in government financing and business by their investment in both public and private investments through debt and equity. A sizable amount of these assets are typically reinvested in the local economy of the country where insurance businesses are based or do business. Insurance is indeed a vital part of economic development.

The insurance sector has grown significantly during the past 20 years, particularly in emerging nations, as a result of increased financial integration and liberalization. The insurance penetration and density have significantly improved not only for developed countries such as the US but also for various developing nations like India. India's insurance industry is regarded as among the fastest growing insurance industry in the world owing to its strong economic growth (IRDAI 2022-2023). As per IRDAI annual report (2022-2023), India's insurance industry with its premium volume of USD 131 billion

currently stands at the 10th position of world's largest insurance industries and further expected to rise to sixth position by year 2032. This is nothing but the reflection of the significance of the insurance industry for emerging nations like India.

In 2022, the value of the worldwide insurance industry was close to six trillion dollars, and it is expected to substantially increase in the coming years (Swiss-Reinsurance Company, 2022). According to the Insurance Global Market Report 2024, there will be a notable boom in the insurance market by 2028, with a CAGR of 7.2%. The increased contribution of the insurance industry in the overall financial sector for both emerging and mature markets has led to the growing importance of insurance and growth nexus. Insurance penetration is a widely used metric to reflect the growth and development of the insurance industry as it measures "percentage of premiums to the GDP." India's insurance penetration for 2022-2023 stands at 4% which is lower than the global insurance penetration (Swiss-Reinsurance Company 2022). The government of emerging nations such as India has taken strong initiatives for improving insurance penetration to enhance its role in economic growth.

It should be highlighted that life and property-liability insurance are likely to have diverse effects on economic growth since they shield individuals and businesses from various risks that have varying implications on economic activity. The importance of the insurance industry for economic growth and development indeed cannot be denied and needs to be examined in depth. The increasing interaction of insurance companies with the financial sector is anticipated to enhance government agencies and economist's interest in developing effective regulatory policies especially for developing countries that are seeking strategies for boosting GDP growth.

This paper aims to improve understanding of the growth-insurance relationship by reviewing and evaluating recent research. This study looks at the empirical research on the relationship between insurance and economic growth.

EMPIRICAL EVIDENCE ON CAUSALITY BETWEEN INSURANCE & ECONOMIC GROWTH

This section of the article looks at the body of research to understand the relationship between economic growth and insurance from a number of perspectives. According Blum et al. (2002) to categorize the finance-growth relations, five potential hypotheses can be used: absence of a causal connection; demand-following, when economic growth drives up the demand for insurance; supply-leading, whereby rises in insurance demand drive upsurges in economic growth; a detrimental causal link between growth and money; and mutual reliance. It appears that a large number of academics have seemed to agree on this categorization of the finance-growth relationship. As with other financial sectors, the relationship between the real sector and insurance development can also be categorized using these five theories of causality. This paper thereby presents the evidence of empirical literature focusing on insurance and economic growth literature in regard to these hypotheses.

The majority of research has discovered evidence suggesting the growth of the insurance industry is best described as a phenomenon led by supply (Outreville, 2012). Ward & Zurbruegg (2000) were the first to provide some evidence of the supply-leading trend. They are recognized for having conducted the first research on the relationship between insurance and economic growth in OECD countries. Using several sets of data from 1961 to 1996 in each nation, they undertake a bivariate cointegration analysis and a causality test to examine the relationship between insurance and economic growth. There was variation in outcome as only Canada and Japan showed that insurance activity spurs economic development thus a supply-leading phenomenon while in other countries there was no indication of interaction. Due to a variety of factors unique to each nation, there are different causal links between insurance and economic growth in many different countries (Ward & Zurbruegg, 2000). Chang et al. (2013) also corroborates the findings of Ward & Zurbruegg (2000), showing that different countries have different relationships between insurance and growth.

Similar to Ward & Zurbruegg (2000), Web et al. (2002) endorsed the supply-leading theory about the connection between insurance and economic growth. Using the Solow-Swan model, they conducted a cross-sectional analysis to examine the effects of life and non-life insurance on economic growth in 55 countries between 1980 and 1990. According to their analysis, the banking

and insurance sectors significantly impact economic growth. Boon (2005) also found strong evidence of supply leading theory by employing Granger – equations and cointegration tests. The author concluded that there exists a long-term impact of insurance on GDP. However, this study was limited to Singapore only.

Kugler and Ofoghi (2005) were intrigued by the results of Ward and Zurbruegg and concluded that their results may be explained by the use of aggregate data in their estimations. They looked into the relationship between the size of the insurance market and economic growth using Johnsons' cointegration tests. They found a bidirectional causal relationship rather than a cyclical effect between these variables. In a similar vein, Lee's (2011) analysis of eleven OECD nations revealed both short – and long-term bidirectional causalities between the growth of the insurance markets and economic growth. He also implied that the expansion of the non-life insurance market had a bigger effect on economic growth than the expansion of the life insurance industry. Alhassan (2016) found that insurance and economic growth is correlated. Furthermore, the author discovered that life insurance had a bigger impact on economic growth than non-life insurance. Kaushal and Ghosh (2018) also discovered bidirectional causality between insurance and economic growth of India in the post-liberalised period.

Haiss and Sümegi (2006) agreed with Ward and Zurbruegg (2000) that insurance makes a significant contribution to economic growth. They look at the various ways the insurance industry affects economic growth, such as investment, risk transfer, alternative savings options, and other sources of negative economic effects. They argue that shifting risk to the insurer stabilizes businesses' revenue streams, reduces volatility, and boosts the economy. Their study produced different outcomes. Their result produced no concrete evidence supporting a strong correlation between GDP growth and total insurance premium income. However, there is strong evidence that connects life insurance to economic growth. In a different study, Haiss and Sümegi (2008) examined the relationship between insurance premiums and GDP growth in Europe by examining cross-country panel data spanning both life and non-life insurance for 29 European nations between 1992 and 2005. One of their insurance metrics is gross premium revenue, which is the total of all investment and premium income. They found that whereas non-life insurance is crucial for developing EU nations, life insurance (at the time) increased GDP development in high-income nations. Their study in regard to the causality link between insurance and economic growth is directed towards the supply-leading. Apart from this, they also insisted that macroeconomic policy and financial sector analysis should give the insurance industry more consideration.

Arena (2008) discovered in their research that there is a strong supply-leading causal link between the activity of "the insurance market and economic growth in both developed and developing countries. He investigated the relationship between insurance and economic growth using the Generalized Method of Moments (GMM) and panel data from 55 industrialized and developing nations over the years 1974–2004. His admission suggests that life insurance plays a major role in the economic prosperity of developed nations, even if non-life insurance development has been shown to affect both developed and developing nations. It is discovered to be more noticeable in the latter than in the former, though.

Similar to Arena, Han et al. (2010) used the GMM model to analyse time-series cross-sectional data for 77 economies from 1995 to 2005. They found compelling evidence to support the hypothesis that growth in insurance coverage propels economic prosperity. Additionally, they discovered—which is consistent with the findings of Curak et al. (2009) that creating non-life insurance and life insurance together is far more important for emerging countries than they are for economies with developed economies. According to Curak et al. (2009), insurance companies can influence economic growth by protecting consumers, developing new technologies, and increasing the rate of saving. Using an endogenous growth model and panel data estimate approaches, they examined whether life and non-life insurance, taken separately or in combination, contributed to economic growth in a sample of eleven transitional European member" nations between 1992 and 2007. According to their findings, the supply-leading theory is supported by the significant and positive stimulation of economic growth that the insurance industry's expansion provides. Additionally, Njegomir & Stojic (2010) endorsed this. The authors concluded that through risk transfer, indemnity, and

institutional investment, insurance promotes economic growth.

In a similar vein, Kjosevski (2011) used "multiple regression models to investigate the relationship between insurance and Macedonia's economic growth. The results showed that the non-life insurance sector and the insurance business as a whole had a favourable and considerable impact on Macedonia's economic growth between 1995 and 2010. Pradhan et al. (2015) also discovered the cointegration of financial development, economic growth, and the insurance industry's development.

Investigations on the relationship between insurance and economic growth have not focused much on the demand-side perspective. Beenstock et al. (1988) study is a classic on the subject of insurance and economic growth. They investigated the connection between property-liability insurance and economic expansion. They came to the conclusion that as the country's income rises, so does the number of property-liability insurance policies buy. One of the most well-known studies on the demand-following theory is that of Outreville (1996). He applied the OLS test to data from 48 developing nations between 1986 and 1993. His findings indicate a strong relationship between GDP per capita and the need for life insurance. Similar to this, Beck & Webb (2003) found that per capita income is a strong predictor of life insurance use using OLS and a fixed effect model using data from 68 countries. One recent study that supported the demand-side hypothesis was done by Ching et al. (2010). Using Johansen cointegration tests, they investigated the causative relation between the growth of Malaysia's life insurance industry and economic expansion. The authors inferred that the GDP of the life insurance sector followed a one-way demand function.

Though the notion about the significance of insurance and economic growth has been attested by various researchers, there are some that have also indicated the negative impact of insurance on economic growth. Kjosevki (2011) found that there is a negative relationship between economic growth and life insurance. Based on density-adjusted data from 23 OECD countries between 1990 and 2011, Zouhaier (2014) found that non-life insurance positively impacted economic growth. However, non-life and total insurance had a negative impact on economic growth when evaluated by penetration. Haiss and Sümegi's arguments can be used to support Zouhaier's allegations that moral and moral hazard concerns among insured individuals can hinder a country's economic progress. According to Zouhaier, the reason for this inverse link is that all of the prospective advantages have been fully realized because the insurance industry in these OECD countries has reached its full potential. Measuring insurance activity using a different proxy, such as insurance density, offers another explanation for the inverse association between total and non-life insurance and economic development according to Din et al. (2017). They conducted a comparative analysis of industrialized and emerging nations, including the United States, the United Kingdom, China, India, Malaysia, and Pakistan, to look into the relationship between insurance and economic growth. Based on net premiums, they found a positive and statistically significant correlation between economic growth and collective insurance for each of the six countries. However, they did find that, while insurance had the opposite effect in the UK, India, and Pakistan, it had a negative impact on economic growth in Malaysia, the US, and China.

EMPIRICAL EVIDENCE ON CAUSALITY BETWEEN INSURANCE & ECONOMIC GROWTH IN INDIA

India is an emerging economy with a strong prospect for insurance growth. This makes studying of insurance and economic growth nexus in the context of the Indian economy significant. However, only limited studies have been conducted in this respect. Vadlamannati (2008) is among the prominent studies exploring the relationship between insurance and economic growth. The author supported the supply-leading hypothesis that insurance contributes to economic growth in India, a developing country. The author discovered that while there is no significant correlation between reforms and economic development, the rate at which changes are implemented has a favourable impact on economic growth. The study highlighted the significant impact of the insurance sector and insurance reforms on economic development. However, it does not provide much information about specific insurance sector reforms that transcends economic growth. Verma & Gholia (2013) findings also

supported the supply-leading phenomenon as they found strong evidence of significant impact of life insurance on economic growth.

Kumar et al. (2020) discovered that both insurance penetration and density leads to economic growth in the long-run, but the same is not true for the opposite. They thus found the one-way causal relationship between insurance. The study however focuses only on the life insurance sector, ignoring the impact of the non-life insurance sector on economic growth and thereby fails to provide true depiction of insurance-economic growth nexus in India. Jana (2020) also inferred a positive link between insurance and economic growth in India. Lastly, the author also argued that in order to enable appropriate economic growth in India (developing country), more emphasis should be placed on the insurance sector. Thanga et al. (2023) study also indicated the casual relationship between life insurance and economic growth in India. The authors however found interesting results as the relationship is directed to be a demand-leading phenomenon where major determinants of economic growth affect the life insurance demand. The study does not take into consideration the non-life insurance sector and thus provides potential for further research.

Table 1: Empirical Literature Examining the Insurance-Growth Nexus (From 2000 onwards)

Authors	Sample-Countries	Focus	Statistical Test	Result
Ward & Zurbruegg (2000)	9 OECD Countries	Total Insurance Industry	Bivariate-Granger Causality Test	Few countries have a weak supply-leading causation link, whereas other countries show no results. Depending on the stage of the economy, the insurance industry's impact on economic growth varies.
Webb et al. (2002)	55 Countries	Life and Non-Life Insurance	OLS* on panel data and cross-country for bidirectional model	Supply-leading causality. The banking and insurance sectors have a stronger beneficial impact on economic growth than they would if they operated independently.
Beck & Webb (2003)	68 Countries	Life Insurance	OLS and a fixed effect model	Demand-leading causality. They came to know that the consumption of life insurance is highly predicted by per capita income.
Boon (2005)	Singapore	Total Insurance Industry	Cointegration tests and Granger Equations	Supply-leading causality. The authors "concluded that insurance and the stock market jointly promote economic expansion.
Kugler & Ofoghi (2005)	UK	Life and Non-Life Insurance	Cointegration Tests	Two-way causality. The authors found that there is a bidirectional relationship between insurance and economic growth and that the insurance sector greatly contributes to economic growth.
Arena (2008)	55 Countries	Life and Non-Life Insurance	GMM* dynamic panel estimations	Supply-leading causality. Both life and non-life insurance have a significant effect on economic growth. On the other hand, life insurance affects growth in high-income countries, while non-life insurance affects growth in both high- and low-income countries.

Haiss & Sümegi (2008)	29 EU Countries	Life and Non-Life Insurance	OLS on an unbalanced panel, Granger causality test, modified Cobb-Douglas production function	Supply-leading causality. The authors found that while non-life insurance is essential for developing EU countries" (at the time), life insurance boosts GDP development in high-income countries.
Vadlamannati (2008)	India	Total Insurance	Cointegration and Granger Causality test	Supply leading causality. The author inferred that India's economic development process is benefitting from both insurance industry growth and its reforms.
Curak et al. (2009)	10 EU countries	Life and Non-Life Insurance	OLS and 2SLS* Estimations	Supply- leading causality. Economic growth is stimulated by the insurance industry's expansion.
Njegomir & Stojic (2010)	Ex-Yugoslavia region	Total Insurance	OLS for panel data	Supply-leading causality. The insurance sector has a favourable effect on economic expansion.
Han et al. (2010)	77 Countries	World Insurance Sector	GMM* dynamic estimations for panel data	Supply-leading causality. It has been determined that life insurance plays a more substantial role in fostering economic growth, particularly in emerging nations.
Ching et al. (2010)	Malaysia	Life Insurance	Cointegration tests	Demand-leading causality. The life insurance industry's GDP was inferred to have a one-way demand following the relationship.
Kjosevski (2011)	Macedonia	Life and Non-Life insurance	Multiple Regression	Supply- leading causality link for both non-life and total insurance. Nonetheless, the author discovered a negative correlation with life insurance.
Verma & Gholia (2013)	India	Life insurance	OLS Regression Model	Supply-leading causality link for life insurance and economic growth.
Zouhaier (2014)	23 OECD countries	Life and Non-Life Insurance and	Multiple regression on a static panel data model	Different outcomes. The penetration rate of "non-life insurance shows a positive relationship with economic growth, but density indicates a negative relationship between economic growth and the total amount of insurance, including non-life insurance.
Alhassan (2016)	Sub African	Life and Non-Life Insurance	ARDL* and Causality	Bidirectional causality link between insurance and economic growth. The ARDL model's results showed that compared to non-life insurance, life insurance has a longer-lasting and more substantial impact on economic growth.

Din et al. (2017)	USA, UK, China, Malaysia, India and Pakistan	Life, Non-Life and Total Insurance	ARDL	Mixed Results. The authors found a substantial correlation between overall insurance coverage and global economic expansion. Likewise, there exists a noteworthy association between non-life insurance and economic expansion. However, in the USA, Malaysia, and China, a strong but inverse association was found between insurance and economic growth.
Kaushal and Ghosh (2018)	India	Total Insurance	VECM* technique and Granger causality test	Bidirectional causality link in the post liberalised period.
Jana (2020)	India	Total Insurance	Multiple Regression	Supply leading causality link. Insurance market contributes to economic growth by serving as a financial intermediary. The author also suggested that in order to enable appropriate economic growth in India (developing country), more focus should be placed on the insurance sector.
Kumar et al. (2020)	India	Total Insurance	Johansen cointegration tests	Supply-leading causality link. The study suggested that insurance penetration leads to economic growth in the long-run.
Thanga et al. (2023)	India	Life Insurance	Granger Causality Test	Demand-leading causality link. Major economic growth factors affect the life insurance demand in India.

**OLS – Ordinary Least Squares; GMM – Generalized Method of Moments; 2SLS: Two Stage Least Square; ARDL – Auto-Regressive Distributed Lagged; VECM – Vector Error Correction model*

CONCLUSION

Financial development has played an integral role in economic growth and development for many years and continues to do so today. The growth and development of financial institutions have been linked with economic growth for both developed and emerging nations. Extensive literature has been conducted in the past to establish the relationship between financial development and economic growth. However, most of the studies have focused on banks and the stock market, ignoring one of the most important financial institutions i.e., insurance industry.

The insurance industry being an important constituent of financial development has placed an important emphasis on economies. This industry has witnessed significant growth in recent years for both developing and developed nations owing to financial system liberalization, globalization, and financial market conglomeration. Because insurance contracts are characterized by indemnity and stability, insurance holds a prominent position in the financial industry. Important international organizations including UNCTAD, World Bank, and the International Monetary Fund, in addition to academic groups, acknowledge the role played by the insurance sector in economic development.

Empirical research focusing on insurance and economic growth has provided very useful insights into this relationship. This paper has examined the empirical literature to understand the importance of insurance in economic countries for both developing and developed nations. It is feasible to draw the conclusion from our paper that the rise of insurance has a strong theoretical basis for affecting economic growth, and vice versa. This paper has attempted to establish the causality link based on available empirical evidence. The current body of empirical research has produced a mixed bag of findings. The less developed nations and those with established financial markets are not the same.

Though most of the study has supported the supply-side theory i.e., insurance activity leads to economic development, it is however not equal for all countries examined. This finding can help the policymakers to develop policies to strengthen the insurance market which in turn can lead to economic growth, especially for the developing countries. The understanding of causality link between insurance and economic growth can help the countries to increase the insurance density and penetration along with economic growth and development by developing appropriate economic reforms and policy.

A lot has to be studied and analysed on the insurance-growth nexus as the current body has been scant as compared to work done on banks/ capital markets and economic growth nexus. This creates more room for future research to examine the effects of various insurance-related factors on economic growth in both developed and emerging nations in both supply-leading and demand leading directions. This paper also opens the future scope of comparative analysis of developing and developed nations on the insurance-economic growth nexus thus providing information on what works for developing and developed nations.

This research paper also found the majority of studies have focused on one aspect of the insurance sector i.e. either life or non-life insurance. There are scare studies that have taken into consideration both the segment and examine their relationship with the economic growth. The future direction of the research should thus focus on taking into consideration different segments of insurance and its relationship with economic growth as only then it will help the country to drive both economic and insurance growth and development. This paper also opens the future scope of comparative analysis of developing and developed nations on insurance-economic growth nexus. This paper in conclusion has provided strong empirical evidence not only in understanding the relationship between insurance and economic growth but also opening doors for future research.

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Beyond T+1: SEBI's Vision for Instant Settlement

Jasdeep Kaur[1] and Pragya Nayyar[2]

Abstract

Securities and Exchange Board of India (SEBI) is trying to revolutionize the Indian stock market through a proposed two-phase rollout of same-day (T+0) and instant settlement. The plan is intended to support the T+1 (trade plus one day) settlement cycle that is presently in use for the equities cash market in secondary markets. This research study presents an analysis of the Indian Securities Markets' transformation and starts with an introduction that focuses on the settlement cycle's evolution in India. The study informs about the objectives and rationale driving SEBI's proposed changes, highlighting the motives behind this initiative. One of the important points is the two-phased implementation strategy, which has been designed to facilitate a systematic adaptation of market participants to the forthcoming changes. The article further details out the advantages and disadvantages relating to "the applicability of T+0/ instant settlement to the top 500 companies".

INTRODUCTION

SEBI's revelation last year on proposed changes outlined the introduction of a facility for clearing and settlement of funds and securities on T+0 (same day) and an instant settlement cycle on an optional basis. This initiative aims to add a new dimension to the existing one-day settlement cycle, popularly known as the (T+1) settlement cycle. The new – T+0 settlement as the name suggests introduces the possibility of executing and settling trades on the very day they occur until a specified cut-off time. This will provide market participants with fast as well as flexible settlement option. Furthermore, the introduction of an instant settlement cycle allows trade-by-trade settlements until the conclusion of the trading day promoting real-time transactions. These suggested modifications highlight SEBI's dedication to promoting a more responsive, effective, and dynamic market environment. The suggested change is an intentional endeavour to bring the Indian securities market into compliance with international norms and to create an atmosphere that facilitates quick, safe, and effective transactions. As SEBI explores these revolutionary changes, the consultation paper serves as a catalyst for in-depth discussions among stakeholders, market experts, and policymakers, ushering in a new era for settlement cycles and shaping the future landscape of India's financial markets.

Keywords:

SEBI, T+0 settlement, instant settlement, Indian stock market, risk management

JEL Code:

Code: G14, G15, G18

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SETTLEMENT CYCLE: MEANING AND ITS EVOLUTION IN INDIAN SECURITIES MARKETS

The settlement cycle in financial markets refers to the time frame within which securities and funds are exchanged between buyers and sellers after a trade is executed. It plays a crucial role in ensuring the smooth functioning of the securities market by facilitating the transfer of ownership and funds between market participants. In order to comprehend the settlement cycle, let us use the example of someone who decides to sell a share they hold for Rs. 10 lakh. If it is sold on a Monday, it does not guarantee that the Rs. 10 lakh will show up in the seller's bank account that same day. The settlement process has a lag in time. The settlement in the stock market is commonly represented as T+1, where T is the transaction date. As a result, if one sell shares on Monday (T), the settlement will take place on Tuesday (T+1), at which point that person will be able to access the fund of Rs. 10 lakh. A distinction exists between the transfer to a Demat account and a bank account. While the sale of shares may promptly reflect funds in your Demat account, the subsequent transfer to one's bank account does not occur instantly. This disparity introduces a delay in the overall settlement process. As of January 2023, the T+1 settlement cycle was fully implemented in India and henceforth India became the second nation after China to operate on a T+1 settlement cycle. No other nation has implemented a system that requires instantaneous settlement. Over time, the Indian securities markets' settlement cycles have experienced notable alterations that are indicative of the constantly changing financial landscape and the imperatives of efficiency, transparency, and risk mitigation. The following paragraphs give an account of the evolution of Indian settlement cycles:

Early Years (Before 2003): In the early years, the settlement cycle in India followed a T+5 (Trade date + 5 days) system. This means that it took five days from the date of the trade for the actual transfer of securities and funds to occur. However, this cycle was considered lengthy and exposed market participants to higher risks, including counterparty risk. Then, in 2002, a change occurred, and the settlement cycle was reduced to T+3

Reform in 2003 – Introduction of Rolling Settlement: India changed to a two-day settlement period in April 2003 by implementing a T+2 rolling settlement cycle. The purpose of this action, referred to as the Rolling Settlement, was to improve market liquidity, lower systemic risks, and comply with global best practices. It greatly increased the securities settlement process's efficiency.

Dematerialization, Electronic Trading, and Regulatory Reforms: The settlement cycle in the Indian securities markets has been greatly simplified by the combination of dematerialization, computerised trading, and regulatory reforms. The shift from paper-based transactions to electronic ones, made possible by organisations such as National Securities Depository Limited (NSDL) and Central Depository Services Limited (CDSL), has simplified the process and decreased the possibility of fraud. It has also expedited the trade settlement; real-time access is made possible by electronic trading systems, which improve the accuracy and speed of transactions. The RBI expedited the settlement process by introducing the Real-Time Gross Settlement (RTGS) technology, which guarantees safe and prompt fund transfers. The regulatory reforms implemented by SEBI, which prioritise transparency and strong risk management, have increased market players' trust. The efficiency and integrity of the settlement cycle of the Indian securities markets are strengthened by this all-encompassing strategy, which also conforms to international norms.

Currently followed T+1 Settlement: A phased transition to T+1 began, starting with smaller stocks and gradually moving to larger cap stocks. The full migration was completed in January 2023.

Future proposals: SEBI has proposed introducing an optional T+0 settlement for intraday trades and even instant settlement in the future. This would further expedite the process and enhance market efficiency.

In summary, the settlement cycle history of the Indian securities markets shows a persistent attempt to adjust to shifting international standards and market conditions. A more reliable and effective market infrastructure has been created by reforms including rolling settlement, dematerialization, and real-time settlement systems, which have also decreased risks and increased investor trust.

OBJECTIVES AND RATIONALE BEHIND PROPOSED CHANGES

In November 2021, the National Stock Exchange (NSE), Bombay Stock Exchange (BSE), and Metropolitan Stock Exchange (MSE) collaboratively announced the gradual implementation of the T+1 settlement cycle, which officially commenced on February 25, 2022. The phased rollout began with a focus on the bottom 100 stocks and expanded monthly, encompassing the subsequent bottom 500 stocks until January 2023. Subsequently, on January 27, 2023, India's domestic equity market seamlessly transitioned to the T+1 settlement cycle, showcasing the successful execution of this transformative initiative and encouraged by this accomplishment, SEBI put forth a ground-breaking proposal by end of 2023 – a facility for the clearing and settlement of funds and securities with T+0 settlement (same day) and an instant settlement cycle, offered on an optional basis, has been proposed by SEBI and is expected to go into force by year's end. This innovative step puts India at the forefront of financial innovation worldwide and indicates a significant improvement in the effectiveness and speed of its securities settlement procedures. The aforementioned modifications demonstrate a dedication to cultivate a lively and adaptable marketplace, reinforcing India's position as a leader in the international financial sphere.

SEBI's proposal to augment the current T+1 cycle for equities cash trades with optional T+0 and instantaneous settlement options is motivated by a strategic set of objectives. The initiative's primary goal is to improve market efficiency by cutting the settlement period dramatically. This promotes better liquidity and market dynamism by accelerating capital reinvestment and lowering the danger of future defaults. The improvement of investor protection is yet another important objective. Investors have more control over their assets and a more safe and transparent trading environment when funds and securities are received immediately since settlement risks are eliminated. Furthermore, SEBI believes that a quicker settlement cycle will increase the appeal of Indian markets internationally. This action, which complies with international norms, may attract more foreign investment and strengthen the market by increasing competition. Additionally, the proposal caters to the diverse needs of investors by providing flexibility in settlement timeframes. Investors can customise their preferred settlement options according to their demands and risk tolerance because both optional T+0 and instant settlement are available with the conventional T+1 cycle.

However, it is crucial to acknowledge the challenges associated with these proposed changes, including operational burdens on clearing houses and brokerages, technological infrastructure upgrades, investor awareness, and the potential for misuse and increased volatility. Despite these obstacles, SEBI's plan shows a dedication to ongoing market development, and the possible advantages present a promising chance for additional expansion and efficiency. As the proposal undergoes development and SEBI seeks feedback, the final details may evolve based on the insights and suggestions from market participants.

TWO-PHASED IMPLEMENTATION STRATEGY

The Securities and Exchange Board of India has proposed a phase-wise transition to instant settlement of trades in the equity cash market.

Phase 1: Optional T+0 Settlement (Same Day Settlement till 1:30 pm)

In the first phase, SEBI may introduce an optional T+0 settlement cycle for trades made until 1:30 pm. This means that the settlement of funds and securities for these trades would be completed on the same day by 4:30 pm.

Initially, this T+0 settlement will be available for the top 500 listed equity shares in three stages, starting from the lowest to the highest market capitalization.

Phase 2: Immediate Trade-by-Trade Settlement (Till 3:30 pm)

In the second phase, an optional immediate trade-by-trade settlement will be carried out for trades made until 3:30 pm. An API-based interface will be built to enable real-time communication between depositories and clearing corporations for early pay-in. All securities available under phase 1 will also be available in phase 2.

SEBI's transition to faster settlement cycles in the equity cash market is driven by key objectives: facilitating quicker payouts of securities and funds to investors and enhancing overall market efficiency while improving risk management for clearing corporations. Certain securities,

such as those under trade-for-trade settlement and those traded in periodic call auction sessions, will not be permitted for T+0 settlement. Additionally, the use of only limit orders for instant settlement is proposed to validate pre-funding adequacy by clearing corporations against the limit price. Hence, this phased approach reflects SEBI's careful consideration of various market nuances as it strives to bring about positive transformations in the Indian equity cash market.

APPLICABILITY OF T+0/INSTANT SETTLEMENT TO TOP 500 COMPANIES

SEBI's proposed phased implementation of T+0 and instant settlement will initially be applicable to the top 500 listed companies by market capitalization. This concept of focusing on the top 500 firms will have certain potential advantages and disadvantages and the same are discussed below:

Advantages

Stability and Resources: The top 500 companies are generally considered financially stable and equipped with the necessary resources. This financial robustness positions them favourably to implement the upgraded infrastructure and risk management systems required for faster settlement.

Reduced Risk Exposure: By targeting larger companies initially, the proposal aims to minimize potential systemic risks in the event of implementation challenges. This cautious approach seeks to mitigate the impact on the broader market.

Liquidity Boost: Faster settlement for larger market players has the potential to significantly enhance market liquidity and efficiency. This can positively impact overall market dynamics and investor participation.

Disadvantages

Exclusion of smaller companies: Smaller companies might feel disadvantaged at the initial stage, potentially hampering their access to faster settlement benefits.

Investor access disparities: Investors in smaller companies could face limitations in capital access compared to those in T+0/instant settlement eligible firms. Hence, in order to ensure a smooth implementation, SEBI's phased T+0 and instant settlement strategy first targets the top 500 businesses, taking advantage of their stability and resources. Although this strategy lowers systemic risks and increases liquidity for major participants, it raises questions regarding possible early exclusion and unequal access for smaller businesses and investors.

IMPLICATIONS OF SEBI'S PROPOSED MOVE

The proposed shift towards T+0 and instant settlement in the Indian stock market by the Securities and Exchange Board of India (SEBI) has ignited discussions about its potential advantages and apprehensions. Here is a breakdown of both aspects:

EXPECTED BENEFITS

- **Reduced Settlement Risks:** In a T+0 settlement system, the time gap between trade execution and settlement is eliminated. This immediate settlement reduces the exposure to counterparty risk, as the parties involved in the trade do not have to wait for an extended period for the transaction to be finalized. This can significantly decrease the likelihood of default or other unforeseen events impacting the completion of the trade**.**
- **Diminished Need for Margining:** With T+0 settlement, there is less need for margin requirements. Margin is often required to cover the risk associated with the time lag between trade execution and settlement. As settlement occurs instantly, the need for holding large amounts of margin is reduced, freeing up capital that traders can deploy elsewhere. This can be particularly beneficial for investors and institutions as it lowers the overall cost of participating in the market.
- **Fostering a More Cost-Effective Trading Environment:** The combination of reduced settlement risks, and diminished margining needs contributes to an overall more cost-effective trading environment. This can attract more participants to the market and encourage higher trading volumes. Increased liquidity and participation can further enhance market efficiency by tightening bid-ask spreads and reducing price volatility.
- **Enhanced Transparency:** Real-time settlement provides a unique opportunity for greater transparency into market activities. This heightened

visibility can bolster investor confidence and empower them with timely information for informed decision-making.

- **Global Competitiveness:** India will be more competitive on the world stage if it adopts a quicker settlement cycle in line with international best practices. The country's financial market may get stronger as a result of this alignment drawing in global investment.
- **Capital Optimization:** A faster settlement cycle translates to capital being freed up sooner for both investors and companies. This accelerated capital turnover allows for more efficient reinvestment or utilization of funds, potentially driving economic growth.

CONCERNS

However, the proposed shift to T+0 settlement also raises valid concerns that merit careful consideration:

- **Technological challenges:** India has many technological obstacles in the way of implementing fast settlement. To successfully process real-time transactions, the financial markets' enormous and diverse infrastructure must be scalable. Getting beyond problems with the current network infrastructure is essential to setting up dependable channels of communication.
- **Increased Volatility:** The faster settlement process might lead to heightened market volatility, particularly during periods of uncertainty or high trading volume. This volatility could disproportionately impact retail investors, necessitating measures to safeguard their interest.
- **Impact on Brokerages**: Traditional brokerage revenue models may face disruption, potentially pressuring these entities to reevaluate their commission structures and service offerings in response to the shift to T+0 settlement.
- **Manipulation Risks**: The faster settlement cycle might offer increased opportunities for market manipulation through strategies like spoofing or wash trading. Implementing robust regulatory measures and surveillance systems is essential to counteract these risks.
- **Investor Protection**: During the shift to T+0 settlement, it is essential to guarantee sufficient investor protection and education. The transparent information dissemination and accessible risk management tools are vital components in safeguarding investors as they adapt to the faster settlement cycle.
- **Liquidity Fragmentation and price discovery:** There are also concerns regarding potential liquidity fragmentation and efficient price discovery due to the coexistence of different settlement cycles, notably T+0 and T+1. The existence of divergent settlement periods may pose challenges to maintaining a cohesive market, potentially leading to discrepancies in liquidity across segments. For the same, SEBI has suggested mitigating price divergence by introducing price bands and enabling arbitrageurs to bridge gaps between these settlement cycles.

  Finally, while the transition of the Indian stock market to T+0 settlement holds significant potential for efficiency improvement, effectively addressing and navigating associated challenges is paramount for ensuring a robust and successful implementation. In order to strike a delicate balance that optimises possible benefits while successfully reducing risks, ongoing stakeholder involvement and thorough analysis are essential. To ensure a seamless and resilient transformation of the stock market infrastructure, striking this careful balance is crucial. This balance will encourage stability and instil confidence of stakeholders in the evolving financial landscape.

CONCLUSION

In the growth of the Indian financial sector, SEBI's ambitious desire for quick settlements in the market marks a turning point. This action has the capacity to be revolutionary, as seen by the possible advantages it may bring about, including increased productivity, less risk of settlement, and improved competitiveness worldwide. However, this vision is not without its share of concerns, including fears of increased market volatility, susceptibility to manipulation, and the essential aspect of technological preparedness. A phased rollout of this plan is necessary to address concerns and allow market participants and infrastructure to adjust systematically.

This strategy avoids the risks that come with quicker settlement cycles by integrating strong safeguards, such as improved regulatory controls and surveillance technologies. In order to ensure that SEBI's objective of immediate settlement is realised, it is necessary to continuously evaluate and provide feedback mechanisms.

While acknowledging the positive impact on efficiency and risk reduction, a collective effort to address concerns is essential for the transformative initiative's success, ushering in a dynamic and inclusive era in the Indian financial market.

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A Study of Diversification of Agriculture in Punjab

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Abstract

This research paper delves into the intricate dynamics of agricultural performance in Punjab during 1970-2019. Punjab is a state which occupies a significant place in the growth story of the agricultural sector in India. This has been a major player in determining the growth of the agricultural sector in India particularly during the period of the Green Revolution. Through an extensive analysis of historical data, government reports, and scholarly literature on the subject, this paper talks about factors which are shaping agricultural growth and cropping patterns in Punjab. However, this study aims to provide policymakers, agricultural practitioners, and stakeholders with valuable insights for sustainable growth and development and rural prosperity.

Keywords:

Agricultural growth, diversification, Green revolution, Punjab

JEL Code:
O13, Q10, Q15

INTRODUCTION

In terms of agriculture, Punjab had excelled during the height of the green revolution. During the years 1971–1972 to 1985–1986; its agricultural GDP grew at an annual rate of 5.7% which is double the growth rate of the rest of India for the same period. India was able to remove itself from food aid based on the terms of the PL 480 Scheme (a food aid programme of USA), and the political conditions that went along with it thanks to Punjab's amazing performance, which was first seen in significant wheat surpluses and subsequently in rice. Punjab came to represent India's surplus of grains, which provided the country with much-needed food security. However, the green revolution began to falter after 1985–1986. From 1985–1986 to 2004–2005, Punjab's agricultural growth slowed to 3% annually, which is nearly equal to what was achieved throughout all of India. The actual problems for Punjab's agriculture, however, reduced to 1.6% annually for the time period 2005–17.

As per the Tendulkar Committee (2011-12), Poverty (7.7%) in the rural areas of Punjab because of the positive impact of the Green Revolution. However, Punjab lost its top spot among other Indian states due to a slowdown in agricultural growth. Should the present growth patterns persist, it will not be shocking if Punjab descends even further in this ranking. Of all the actions the state (pre – and post-independence as Britishers invested in irrigation facilities in Punjab, see Jodhka, 2021) took, three interventions– (i) the construction of irrigation systems, (ii) all-weather roads to connect rural areas, and (iii) a guaranteed market for farm products played significant role in development of rural areas of Punjab. In order

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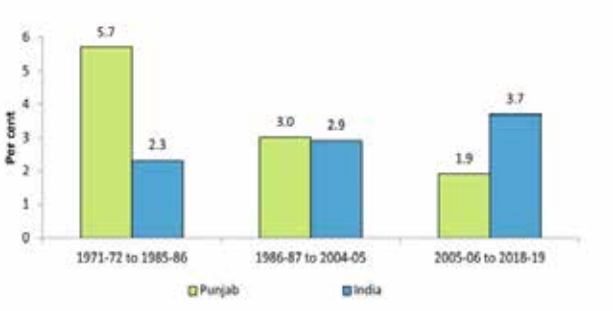
to promote the production of cereals, the government effectively placed 98.5% of the gross cropped area under irrigation and has given free electricity. A well-functioning procurement system guaranteed a market for agricultural products. The increase in farmers' income and the agricultural GDP was largely attributed to these policy interventions (Gulati, Roy and Hussain, 2017).

Nevertheless, the state's agricultural sustainability suffered greatly as a result of the same policies. Despite Punjab's unfavourable agro-climatic conditions, farmers were encouraged to produce rice due to the availability of free power and a guaranteed market. Because paddy agriculture requires a lot of water, the state's water table has been rapidly declining. In the state, 80% of the blocks are currently overexploited. This brings up some important issues. What went wrong in Punjab? And how, over the course of the next ten to fifteen years, can it return to a high-growth path in agriculture of more than 5% annually?

AGRICULTURAL GROWTH IN PUNJAB

Following the 1966 reorganisation of Punjab, a number of initiatives were implemented that helped the state develop into a leading agro-based economy. After independence, India's economy remained food insecure and hence producing adequate food was the primary objective. The green revolution approach was used to achieve that, with an initial emphasis on fertile land (Punjab, Haryana, and Western Uttar Pradesh) and hence economies in these states attained high growth rate due to scientific cultivation including fertilisers, irrigation systems, and high yielding wheat seed varieties. From 1971–1972 to 1985–1986—the sector expanded at a rate of 5.70% annually. The growth rate decreased to 3% between 1986–1987 and 2004–05, and even lower to 1.9% in the more recent period between 2005–06 and 2018–19.

Figure 1: Agricultural Growth Rates in Punjab and India (1971-72 to 2018-19)



Source: Government of Punjab (www.pbplanning.gov.in)

DETERMINANTS OF AGRICULTURAL GROWTH IN PUNJAB

Irrigation facilities

Due to inadequate monsoon, the development of irrigation systems was necessary to ensure an unlimited supply of water for farming. It played a crucial role in the transformation of the agricultural sector of Punjab. 61% of the net irrigated area was covered by other wells and tube wells in 1986–87. As the need for water grew over time, Punjab saw a significant transitional change from canal irrigation to tube well irrigation. The utilisation of centrifugal tube wells as the primary source of irrigation has been facilitated by financing facilities and free energy, which guarantees a consistent supply of water. Approximately 73% of the net irrigated land in 2013–14 was irrigated with groundwater. However, careless water use is contributing to excessive groundwater extraction. Currently, 172% of the state's groundwater is developed, and 80% of its overall geographical area has over utilised groundwater (Gulati, Roy and Hussain, 2017). Between 2008 and 2012, the water table dropped by 70 cm annually. Since one kilogramme of rice requires 3000–5000 L of groundwater, it is not viable to produce and export rice on a large scale from Punjab. Punjab was better suited for the production of wheat and maize due to its semi-arid climate. However, free power decreased the cost of water economically, and irrigation programmes made farmers more easily able to acquire water. Simultaneously, due to policy of the GOI, Punjab changed its cultivation pattern from traditional wheat-maize to water-intensive wheat-rice which was not unsustainable from an ecological standpoint, but it is also unprofitable from an economic one. Submersible pumps are gradually replacing centrifugal pumps due to groundwater depletion, which raises production costs.

Free power subsidy

During the green revolution, rules pertaining to power pricing were crucial in increasing production. As a percentage of overall power sales, the sale of electricity to the agricultural sector has continuously outpaced the share for all of India. Between 2000–01 and 2015–16, the use of the state that were powered up increased by 57%.

The worrying depletion of groundwater is a result of the free power's wasteful use and rising load on subsidies. Farmers were reimbursed for a portion of the electricity

cost in the beginning of the green revolution based on their per-unit consumption. With the decline in net return in the late 1970s, a strong push to reduce input costs developed. A flat tariff replaced the previous system of pricing power in the late 1970s. There was also a decrease in the cost of electrical connections starting in 1984. After 1997, the government announced free electricity for the agricultural sector for a longer time.

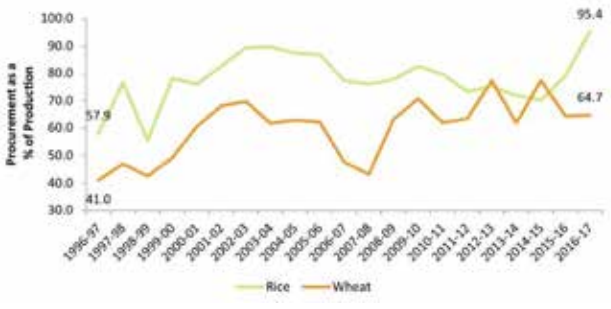
Use of fertilisers

Fertiliser usage can be optimised to greatly increase crop yields. The most nutrient-intensive crops in Punjab are wheat and rice, and over the past 40 years, monocropping of paddy and wheat has resulted in a gradual decrease in the soil's macronutrient (NPK) and micronutrient (zinc, iron, and manganese). Through significant subsidies, the Indian government induced farmers to use more fertilisers. Use of fertilisers in Punjab was 231 Kg/ha against the national average of 130.8 kg per ha in 2016–17. Due to increased use of fertilisers in the state of Punjab, soil productivity is decreasing.

Procurement policy

Growth with equity seeks to balance two goals: a minimum income for farmers and smooth supply of food staples at reasonable prices for disadvantaged groups in society. Food Corporation of India was established in 1965 for procurement of crops alongside other state-run organisations. State agencies obtain coarse grains on the government's instruction, but not consistently. The MSP is in charge of ensuring that the price stays above a specific threshold. The MSP Scheme was implemented to guarantee farmers received fair prices for their produce, thereby stimulating production.

Figure 2: Procurement as a percentage of Production



Source: Department of Food and Civil Supplies, Government of Punjab

The Commission of Agricultural Cost and Prices (CACP), among other things, takes into account the costs of cultivation and the profit margin for farmers when recommending minimum support prices. Numerous purchase centres for rice and wheat have been established at various mandis and strategic locations to streamline the procurement process.

Punjab has made significant contributions to the procurement of wheat and rice, which has been crucial to the advancement of its agriculture. In Punjab, FCI and state government organisations purchased about 95% of the rice and 65% of wheat produced within the state between 2016 and 2017 (Fig. 4.7). Because of this, the majority of farmers' produce is guaranteed a market, which encourages the production of only wheat and paddy. In the central pool, Punjab provided 46% of the wheat and 30% of the rice.

Roads

A fundamental piece of infrastructure for economic growth is the road. One important measure of market accessibility is road connectivity. Road connectivity becomes even more important for marketing of perishable agricultural produce. To keep crops from spoiling, farmers are frequently compelled to sell their goods for even less than what it costs to cultivate them. Modern road and transportation infrastructure guarantees that agricultural products arrive at mandis on schedule and without sacrificing quality. Punjab boasts some of India's most advanced road networks.

SECTORAL COMPOSITION OF GROWTH OF AGRICULTURE OF PUNJAB

Food grains & non-food crops

Punjab produces a number of important crops, including cotton, sugarcane, wheat, maize, bajra, and oilseeds. However, rice and wheat are the main crops. The production of wheat and rice increased quickly in conjunction with the expansion of the area under cultivation of these crops. From 4.8 million MT in 1970–71 to 15.9 million MT in 2016–17, wheat production grew. While the state's share of the nation's total wheat production fell from 23.2 to 17.2% during the same period, its share of rice production rose from 1.40% in 1970–71 to 10.8% in 2016–17.

Horticulture

Only 4.23% of the total area under cultivation is used for cultivation of fruits and vegetables. However, the contribution of horticulture is significant in the overall performance of the agricultural sector of Punjab. Punjab only produces around 2% of the fruits of total production at the national level and 2.7% of vegetables. It has been noticed that the area under cultivation of fruit and vegetables has not been increasing, any increase in the production of fruits and vegetables is due to an increase in productivity. The most important vegetable crops grown in Punjab in terms of production in 2016–17 were bottle gourds (ranked 7th), cauliflower (10th), potatoes (6th), radish (2nd), and carrot (2nd). Fruits grown in Punjab are guava, orange, lemon, malt, and kinnow. In addition, the state ranks sixth in the nation for both guava and orange production.

Fruit and vegetable percentage of GVOA and the increase of GVO from vegetables and fruits year over year.

Figure 3: Share of F&V in Total GVO and YoY Growth Rate (2011-12 Prices)

Source: Ministry of Statistics and Program Implementation, Government of India.

Livestock

Milk

82% of the livestock segment's total output value is derived from dairy. Despite its small size and population, the state has seen an impressive increase in milk production in the past, placing it sixth in India after UP, Rajasthan, Madhya Pradesh, Gujarat, and Andhra Pradesh. From 2001–2002 to 2009–2010, milk production increased at a rate of 2.2% annually; however, in recent years, this growth rate has increased. At 1037 grams per day per person, the state enjoys the highest per capita milk availability (2016–17). Punjab's per month per-person intake of liquid milk is 10.9 L in urban areas and 11.9 L in rural areas, respectively. These figures are high when compared to the average for all of India, which is 5.4 L

Figure 4: Growth Rate of Milk Production from 2000-01 to 2016-17

Source: Office of the Managing Director, Milkfed, Chandigarh

Punjab State Co-operative Milk Producers' Federation Limited (Milkfed) was established in 1973 for the accessibility of a profitable market for milk producers and to distribute technical inputs. It is the highest-level body in the state, followed by milk unions at district level and cooperative societies at the village level. Federation sells dairy products under the Verka brand. The Verka brand is available throughout Northeast India, Jammu & Kashmir, Punjab, Haryana, and Himachal Pradesh. Ghee is imported by countries in the Middle East, the United States, Canada, the UK, Australia, Japan, New Zealand, and Malaysia.

Egg and meat

Proportion of meat to the gross value of output (GVOA) has remained relatively constant at 3.7% of GVOA for more than twenty years. Punjab has a total population of 81.2 lakh livestock and 167.9 lakh poultry, based on the most recent livestock census (2012). 248.6 thousand MT of meat were produced in 2016–17, according to estimates. In 2016, and 2017, Punjab produced 47,825 lakh eggs. In Punjab, there are 166 eggs available per person annually. It has been meeting the demand for eggs in J&K and other states

Punjab is the third-largest supplier of buffalo meat after Uttar Pradesh and Maharashtra being the top two producers. Punjab is also promoting the use of mutton and poultry to target the domestic meat market. Although

the Barwala–Derabassi–Lalru cluster in Punjab/Haryana is currently the biggest poultry cluster in north India, many Punjabi poultry farmers are spreading their poultry business in other states like UP, J & K, etc.

Fisheries

Figure 5: Production of Fish in '000 Tonnes

Source: Department of Animal Husbandry, Dairy Development and Fisheries, Government of Punjab.

Just 1% of the value of produce from agriculture and related industries comes from the fishing industry (2015–16). With no coastline, Punjab can only produce fish that is found in its interior regions. The state contains 14,510 acres of small reservoirs, 11,200 km of canals, 13 notified reservoirs, and 868 km of rivers. Furthermore, 9318 constructed village ponds totalling 32,597 acres are present. The annual growth rate of fish production from 2000–01 to 2016–17 was 6.3%. To ensure that fish seed is accessible at reasonable costs, the private sector should be encouraged to produce high-quality seed. The production of fish seeds has increased slowly in the adjacent state, Haryana, but it has remained nearly stagnant in Punjab.

CONCLUSION

The preceding section's analysis of performance of the Punjab agriculture, identifies the four elements that have historically propelled Punjab's agricultural expansion, which are increased irrigation, MSP for rice and wheat, diversification crop production; and well-developed road network. Due to better irrigation facility, the maximum area was covered under irrigated areas, and due to controlled irrigation there was increase in production. However, excessive use of underground water has posed a serious threat for the sustainability of the agriculture sector of Punjab. The Johl committee report of 1986 suggested switching to a wheat-maize cropping pattern instead of the wheat-rice one, and that recommendation is still in effect today. Without similar incentives, Punjabi farmers have not switched from the rice to other kharif crops.

Better developed road network has been facilitating interaction between various agents and reducing loss of perishable agricultural produce. In these areas, there is not much room for improvement and hence we must look for the production and promotion of high value crops ensuring food security for prosperous future agricultural prosperity of Punjab.

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Analysing the Impact of Governance Indicators on Agricultural Export Value and GDP in Agriculture for China

Navneet Kumar[1]

Abstract

This paper attempts to analyse the influence of agricultural trade reforms on governance indicators within the context of China's adherence to the WTO's Agreement on Agriculture. The study further explores how shifts in these governance indicators have impacted key agricultural performance metrics, specifically focusing on the agricultural export values and the gross value added in agriculture. The analysis has been done for the post-2001 period, following China's accession to the WTO, to assess the broader economic ramifications of these reforms on the agricultural sector. The study reveals that there has been a continuous rise in the import of agricultural commodities. Non-tariff measures have been the go-to solution for the Chinese government to reduce imports. The results from the regression analysis reveal that the quality of governance through its various dimensions does not have an impact on the performance of the agricultural sector. Be it the exports of agricultural commodities or the contribution of the agricultural sector to the overall GDP, the quality of governance has not had any impact on either of them in the case of China.

Keywords:

Trade reforms, governance indicators, agriculture, export

JEL Code:

I38, F13, Q17, Q18

INTRODUCTION

Good governance remains at the core of the development process of any country. It is usually assumed that there exists a causal relationship between good governance and better development outcomes which are usually characterized by high levels of literacy, low infant mortality rates, and also higher levels of per capita income. According to Kaufmann et al. (1996); governance is broadly defined as the "traditions and institutions by which authority in a country is exercised. This includes (1) the process by which governments, are selected, monitored, and replaced, (2) the capacity of the government to effectively formulate and implement sound policies, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them." Governance is also one of the key factors that provide a mechanism such that there exists a collaboration across the various sectors of the economy and also tries to address the obstacles of inequality and exclusion during the course of development. This means that "one-size-fits-all" models of governance cannot work in a world that is so diverse and dynamic.

The quality of governance is not just limited to the national and sub-national levels as in recent times there has been greater attention to the issues of global governance. The effects of climate change, international financial crisis, terrorism, etc. signify the importance of cross-border issues in this regime of

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neo-liberalization. Some of the mechanisms that can promote good governance are democratic institutions, transparency and effective public services. The quality of participation in good governance is one of the key features that ensure that even the most vulnerable and the weaker sections of society can also move up the ladder and the inequality gap does not widen. Accountability is one such feature of good governance which runs both horizontally (between the states such as the executive and judiciary) and also vertically (from the government to the people.) Moreover, the rule of law and justice is another feature that can promote equity, gender equality and inclusion and a more equitable distribution of resources between men and women. According to Rodrik et al. (2002), "the quality of institutions and governance is an important determinant of economic growth and income levels, since it affects, for example, the costs of transactions."

Bad governance on the contrary leads to inefficient outcomes in the form of poor implementation of programs and corruption and further leads to "weak social norms and increased social and political conflict over the access and use of resources" (De, 2010). The concept of governance and the indicators associated with it vary by context and by sector. Discussing the impact of good governance on international trade; it has been found that having a comparative advantage in particular goods can have a positive impact on the economic growth rates and thus higher levels of income. Good governance ensures that there are efficient institutions such that they reduce the risk premium that is required for international trade. Moreover, there might be also a case that trade might impact the quality of institutions and the governance therein. According to Busse et al. (2007), there exists a positive linkage between good governance and trade. The first linkage can be a result where economic agents can learn from their trading partners by adapting successful institutions and regulations. The other one could be that international competition might force countries to make their institutions more efficient as domestic producers can run out of business without reforms. Also, "better regional institutions improve the regional investment climate and increase FDI inflow into the country" (De, 2010). According to Rajan and Zingales (2003), "the possibility of rent-seeking and corruption is lower in more open economies as foreign firms increase the number of economic agents that are involved." Anderson and Marcouiller (2002) suggested that weak institutions can work as significant barriers to trade. De Groot et al. (2004) in their study found that the existence of similar institutions and the quality of institutions in trading partners are positively related to bilateral trade and Bolaky and Freund (2004) in their study revealed that "regulatory quality influences the interaction between trade and economic growth and that countries which have excessive regulations do not benefit from trade." Taking into consideration the fact that governance is a multidimensional phenomenon Kaufman, et al. (1996) gave a measure that is much more disaggregated. The World Bank Institute (WBI) incorporated several dimensions while analysing the type of governance in the country. The dimensions incorporated are "Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption[2]." Taking into account the various dimensions of the quality of governance, the paper tries to analyse the impact of agricultural trade reforms on governance indicators by focusing on the WTO's Agreement on Agriculture for China. Furthermore, the paper attempts to study the impact of these governance indicators by assessing the performance of agricultural export value and gross value added in agriculture for the Chinese economy after China became a member of the WTO in 2001.

CHINA'S COMMITMENT TO THE WTO

China became a member of the WTO in 2001 during the Doha round, which was an extension of the Uruguay round which ended in 1994. The Doha round ministerial conference held in November 2001 provided a new mandate for negotiations and these negotiations formed the basis of the Cancun meeting in September 2003.

[2] Voice and Accountability: This is the ability of citizens of a given nation to take part in the selection of their leaders. Mechanisms such as freedom of expression, freedom to associate and access to mass media are also encompassed in this aspect. Political Stability and Absence of Violence/Terrorism: This dimension assesses the extent of the threat of political conflict, civil disturbances or even terrorism that is of a political nature. Government Effectiveness: This measures attitudes about the policy formulation and implementation capacities of the government about the growth of the business economy. Regulatory Quality: This emphasizes the government's capacity to formulate and implement appropriate policies and regulations for the increase of the private sector. Rule of Law: This encompasses how well or the extent to which people obey the structured ways of social ordering, including their governmental institutions, including the police, courts, contract enforcement, property law, and the level of crime and violence.

The principal goals decided in the Doha ministerial conference were related to market access, reduction of the export subsidies and reduction of the domestic supports which are also considered as the three pillars of these agricultural talks. One of the most distinguishing features of these talks was the special and differential treatment for the developing countries. "A crucial aspect that we need to notice here is that China did not accede to the WTO as a developing country as it was a lower – middle-income country in 2001 and as a result, the accession was negotiated based on special and unusual characteristics of the Chinese and its market size" (World Trade Organization Trade Policy Review: China, Geneva, 2014). The WTO plus commitments then led to bilateral agreements with the USA and the EU and these accession agreements were incorporated into China's WTO accession package.

Analysing China's position on market access we find that China since 1979 started its process of reforms where there were deep and unilateral reductions in the agricultural tariffs. China had much lower levels of average agricultural protection when compared to a lot of developing countries and even some developed countries. After China joined the WTO, "it further reduced the overall agricultural tariffs to a simple average statutory rate of 15.2% from a pre-accession rate of 21%" (World Trade Organization Trade Policy Review: China, Geneva, 2014). Studies also reveal that the simple average agricultural import tariff also decreased from 42.2% in 1992 to 23.6% in 1998 and the real applied tariff rates which were about 7.6% pre-accession also came down to 3.6% after the accession. Coming to the export subsidies, China pledged to eliminate all the agricultural export subsidies and also decided not to introduce them again after it signed the US-China Bilateral WTO agreement in November 1999. Under the same agreement, China also decided to continue using the "non-market economy" methodology in the anti-dumping cases while calculating dumping margins for the period of next 15 years. Although various studies reveal that China continued to improperly subsidize some corn exports, these subsidies did fall and in the year 2004, China decided to stop all export subsidies in compliance with its WTO commitments. Moreover, a deep study into China's reform process further reveals that the phase-out of export subsidies started long back in order to ensure domestic efficiency. China also proposed a 50% quantitative reduction from the scheduled levels in the first year and a complete phase-out within the next three years. (This deadline was six years for the developing countries.) (World Trade Organization Trade Policy Review: China, Geneva, 2014).

With respect to domestic support in the context of the Chinese economy, we find that China has not had a well-developed or formal system of domestic agriculture subsidies when compared to other developing or developed countries. China during the period of its reforms shifted away from government domination of financial flows in the agricultural sector towards the rise of the markets. Data reveals that the value of the domestic agricultural support was only between 2% and 3.5% of the gross value of agricultural output depending on the year while the Uruguay round agreement permits it to be 10% for the developing countries. The main reason China conceded a lower ceiling than other developing countries as domestic supports crowd out otherwise competitively priced Chinese products and distorts world prices. Absence of the agricultural subsidy under the rules of the Aggregate Measurement of Support (AMS), China found that this led to "significant inequity, imbalance and unfairness in the current rules of agriculture" as developed countries were enjoying higher levels of AMS and therefore have been able to surpass the 5% de minimis threshold to provide support to a number of specific products while the most of the developing members have had no entitlement to the AMS. After China became a member of the WTO in 2001 it accepted two major multilateral instruments viz. TRIPS agreement in 2005 and the Trade Facilitation Agreement in the year 2015. It also became a member of the Information Technology Agreement in 2015. China has so far not used the protocol which amended the TRIPS Agreement. The country opted out of the flexibilities afforded to developing members by the other two agreements, respectively. China since 2009 has been one of the top four largest exporter markets in the world for food, agricultural and seafood products. Although China has been one of the fastest growing markets its overly restrictive and burdensome import requirements have hampered the ability of the farmers in other countries. (World Trade Organization Trade Policy Review: China, Geneva, 2014). To address the same issue U.S. entered into The Phase One Economic and Trade Agreement with China on January 15, 2020, which will

open China's food agriculture markets for American products. Moreover, in the recent WTO dispute of China with the US which the US won, China agreed to comply with its WTO obligations for the administration of the Tariff Rate Quotas for wheat, rice and corn by December 31, 2019.

QUALITY OF GOVERNANCE AND DEVELOPMENT IN CHINA

The World Bank Institute categorizes governance quality into six primary dimensions: "voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption." These governance indicators have been important in assessing the interplay between governance and development in China, which features an authoritarian economic model along with a remarkable economic expansion, making it a unique case to study.

Government Effectiveness and Regulatory Quality: China's development narrative has been heavily influenced by the state's capability in carrying out economic policies over the years, especially from the market-oriented reforms in the late 1970s. Naughton (2007) claims that apart from political control, the Chinese government has rated highly on regulatory quality, thus encouraging development by freeing up restrictions on manufacturing and agriculture for example. Policy formulation capability has been central to China's economic growth. This is more especially so in the case of the special economic zones (SEZs) such as Shenzhen prepared for the reforms. Tsai (2007) also mentions that local governance structures were important in creating regulatory environments enhancing entrepreneurship and industry.

Control of Corruption: Corruption is one of the aspects of governance that has posed some challenges in China. Above all the country's accomplishments in the economic sphere, corruption levels are still very high. In China, despite the economic shocks of the 1990s, Wedeman (2012) states that corruption has been relatively rampant if not widespread. Public administration reforms including anti-corruption measures, especially under President Xi Jinping, are important for good governance. Some of these campaigns, though successful, have been called out for dealing with political demonstrators instead of the issues that contribute to the prevalence of corruption. In addition, these efforts correspond with the call made by the World Bank about the need for transparency and accountability in governance for effective future development.

The Rule of Law: Rule of law as defined by the World Bank is yet an interesting dimension of governance with regard to China where both strengths and weaknesses are evident. Although the state's efforts to enforce commercial and property laws with the view to encourage economic activities have been successful, Peerenboom (2002) points out the limitations that exist in the legal system in China, especially with regards to civil liberties and political rights. The state's control over the judiciary and the limited constitutional reforms adopted have, however, impeded the evolution of a robust rule-of-law regime. This gap in the economic and political order is suggestive of "economic governance" which is the preferred mode of organization in contemporary China where the emphasis is more on economic growth than democratic governance.

Political Stability: In regard to China's development success, it should be noted that political stability has been one of the considerable factors with the communist party controlling politics to the latter. Nathan (2003) talks of the Chinese political system as one in which there is "authoritarian resilience" as central political power has been instrumental in promoting economic order and policy persistence. The state's capacity to control any form of resistance and civil unrest, which is often viewed in a negative light with respect to human rights, has been fundamental towards guaranteeing the stability that is needed for the long-term planning and growth of the economy.

DATA AND METHODOLOGY

The data for the various governance indicators has been taken from the World Bank Development Indicators website. The six aggregate indicators are based on 30 underlying data sources reporting the perceptions of governance of a large number of survey respondents and expert assessments worldwide. Data for all other variables is from FAO, UNCOMTRADE, WTO and WITS websites (Kaufmann, D., Kraay, A., & Zoido-Lobaton, P.1999).

Descriptive statistical analysis in the form of graphs and various statistical measures has been used for the empirical analysis of the data. Time series analysis for the

years 2001-2017 for analysing the impact of governance on the export value of agricultural products and GDP agriculture has been done using the OLS technique. The regression equation is of the form:

$$Y_t = \beta_1 + \sum \beta_{it} X_{it} + \epsilon_t$$

where, i=1 to 8 and represents β_s for each explanatory variable viz. "Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption, production and yield." The variables that have been chosen other than these six dimensions of governance indicators are Production (Tonnes) and Yield (hg/ha). We expect the amount of production and the yield to be positively related to both the dependent variables. Furthermore, our hypothesis is that, a better value of governance indicators in terms of six measures (Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption) must have a positive impact on the export value index of agricultural commodities and also on the GDP agriculture (Gross Value Added to agriculture, forests and fishery)[3].

Table 1: List of Dependent and Independent Variables

Dependent Variables[4]	Independent Variables
Regression – 1: *Export Value Index of Agricultural Commodities* ***Regression – 2:*** *Gross Value Added (Agriculture, Forestry and Fishing) as a percentage of GDP[5]*	1. *Voice and Accountability* 2. *Political Stability and Absence of Violence/Terrorism* 3. *Government Effectiveness* 4. *Regulatory Quality* 5. *Rule of law* 6. *Control of Corruption* 7. *Yield (hg/ha)* 8. *Production (Tonnes)*

RESULTS AND DISCUSSION

Tariff Measures

China since the very beginning has been known for its manufacturing and services sectors, although the agricultural sector plays an equally important role in China's economy. As per the World Bank data for the year 2011, agriculture contributed to almost 10% of the total GDP and approximately 40% of total employment in 2008. Now, in the last few years data reveals that there has been a significant decline in the share of the population that is engaged in agriculture which simply reflects that the levels of productivity have risen along with the rise in the production of major commodities with China becoming one of the largest producers in the world for commodities such as rice, wheat, cotton and potatoes. China has a relatively low set of agricultural import tariffs compared to other WTO members and domestic support for agriculture in China remains less than that for many developed countries. The imports have been growing much faster than the exports once China became a member of the WTO where it started to happen that China reversed its long-time status as a net agricultural exporter to that of a net importing country since 2004 with

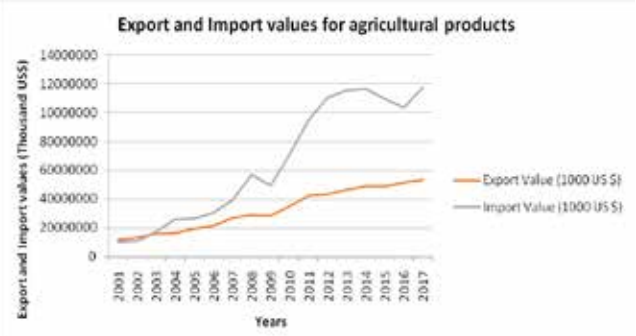
[3]Gross value added (GVA) in agriculture refers to the value of agricultural output minus intermediate consumption, and it is used to assess the contribution of the agricultural sector. Gross Domestic Product (GDP) in agriculture represents the total GVA from all sectors of the economy for a specific year, adjusted for taxes and subsidies. GVA in agriculture is used in this case because GDP data for agriculture is not available.

[4] All the dependent and independent variables are continuous variables.

[5] We use GDP value-added agriculture, forestry and fishing as a percentage of GDP to normalize the data values.

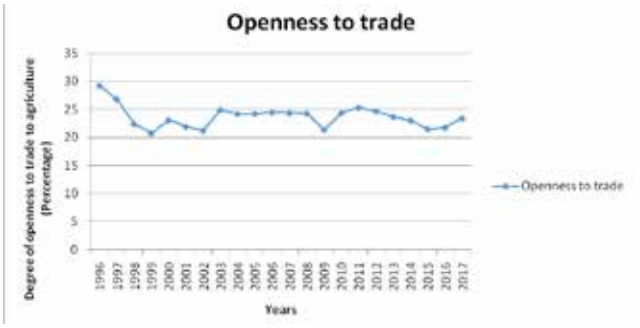
most of the imports comprising of cotton and soybeans. Figure 1 shows how there has been a continuous rise in the import values of agricultural commodities sometime during 2004 and this difference between the import and the export values has been constantly rising which is also reflected through the degree of openness for agricultural products (Figure: 2).[6]

Figure 1: Export and Import Value of Agriculture Products (1000 USD)



Source: FAO data

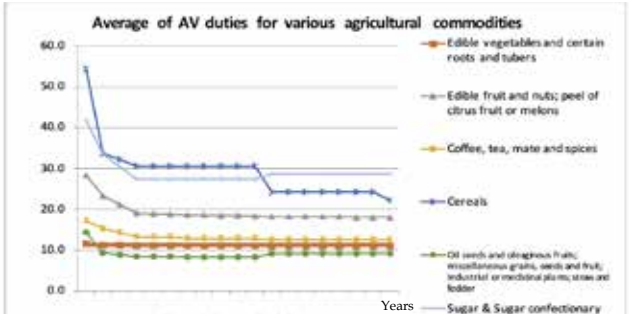
Figure 2: Degree of Openness to Trade to Agriculture (%)



Source: FAO Data

China's tariff rates vary significantly across different crop categories but they are more or less within the WTO-bound levels and all are ad valorem in nature. We can see from Figure 3 that the highest tariff rates are applied to cereals and sugar. On the contrary, various other products such as fruits, vegetables, coffee or oil are what China is considered to have a comparative advantage in production. Moreover, we also witnessed a much larger decline in the tariff rates during the early 2000s across all commodities and these tariff rates have been more or less stable for the last decade or so, with a few exceptions as in the case of cereals and sugar. On the contrary, various other products such as fruits, vegetables, coffee or oil are what China is considered to have a comparative advantage in production. Moreover, we also witnessed a much larger decline in the tariff rates during the early 2000s across all commodities and these tariff rates have been more or less stable for the last decade or so with a few exceptions as in the case of cereals and sugar. Looking at the Number of AV duties (Figure: 4) that have been imposed since 2001, we find that it has been more or less the same (less than 20) for sugar and sugar confectionery products. There is not much fluctuation too when we take into consideration the cereals or coffee, tea and spices. The number of AV duties is the highest for oilseeds, fruits and vegetables. Moreover, there has been a continuous rise in their number after 2011. This could be because as we saw above, China has a comparative advantage in these products. So, the number of AV duties that have been imposed is much higher when compared to all other agricultural commodities.

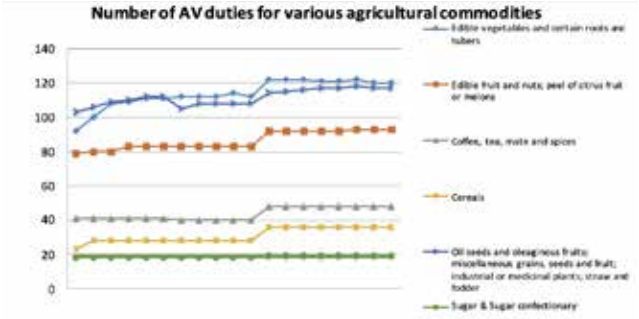
Figure 3: Average of AV Duties for Various Agricultural Commodities



Source: FAO Data

[6] We calculate the degree of openness using the same formula as given in the theory. Instead, the difference here is that we use GDP value-added agriculture, forests and fishery instead of GDP agriculture.

Figure 4: Number of AV Duties for Various Agricultural Commodities

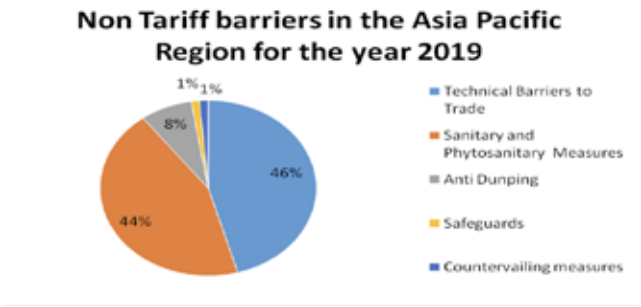


Source: FAO Data

Non-Tariff Measures

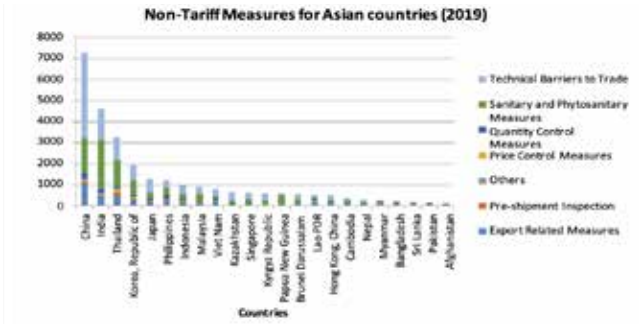
According to UNCTAD (2012), "NTMs are policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both." Analysing the data, we find that there has been a considerable rise in the non-tariff measures in the Asia-Pacific region while applied tariffs have nearly halved. According to the WTO agreements, all the basic rules related to the technical measures related to food safety as well as animal and plant health standards are set by the WTO APA agreement while the TBT sets the rules related to technical measures. The study reveals that "in Asia and the Pacific in 2018 the number of new SPS and TBT initiations notified to WTO reached 1,360 measures – a 15% year-on-year increase." We also find that the numbers of SPS and TBT have remained relatively stable or static over the years for developed countries while there has been a substantial growth in these numbers when it comes to developing countries. The UNCTAD data reveals that "In the Asia-Pacific region, 30% of measures in the UNCTAD TRAINS NTM database are sanitary and phytosanitary measures and 48% are technical barriers to trade." We also find that China turns out to be the country with the highest number of non-tariff measures in the Asia Pacific region followed by India, Thailand and Korea.

Figure 5: Non-Tariff Barriers in the Asia Pacific Region (2019)



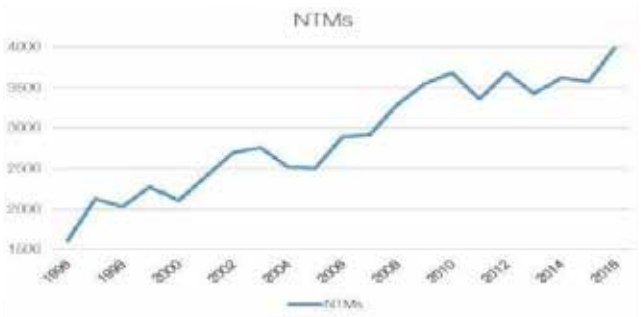
Source: UNCTAD Data

Figure 6: Non-Tariff Measures for Asian Countries (2019)



Source: UNCTAD Data

Figure 7: Number of Non-Tariff Barriers (NTMs)



Source: Timini and Conesa (2019)

Moreover, looking at Figure 7, we find that there has been a continuous rise in the number of non-tariff barriers. Within the last two decades, the number of non-tariff barriers has more than doubled and has been increasing continuously. This also holds if we just take into consideration the number of non-tariff measures imposed by the Chinese government on agricultural commodities. (Refer to Table: 2 and Figure: 8).

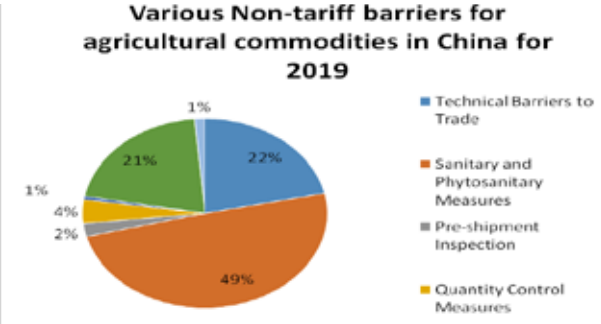
Table 2: Number of Non-Tariff Barriers (NTMs) in China for Agricultural Commodities (2019)

	Product description	Technical Barriers to Trade	Sanitary and Phytosanitary Measures	Pre-shipment Inspection	Quantity Control Measures	Price Control Measures	Export Related Measures	Others
Sec. I	Live animals and products	226	481	21	53	5	278	17
Sec. II	Vegetable products	313	976	51	55	5	412	15
Sec. III	Animal and vegetable fats, oils and waxes	115	249	10	33	4	88	9
Sec. IV	Prepared foodstuff; beverages, spirits, vinegar; tobacco	332	549	19	44	12	168	21
	Total	986	2255	101	185	26	946	62

Source: UNCTAD Data

We have already discussed the impacts of good governance on international trade and also on the development of any economy earlier. Proceeding ahead here we look at the trend of the six dimensions of the governance indicators and how they have evolved over a period of time. As per the definition of the governance indicators, the estimate of governance ranges from approximately – 2.5 (weak) to 2.5 (strong). In the case of the Chinese economy, we find that almost all the dimensions have been on the weaker side since the early 2000s and have hardly shown any improvement in this aspect.

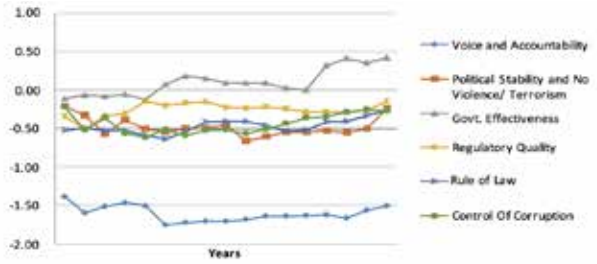
Figure 8: Non-Tariff Barriers for Agricultural Commodities in China (2019)



Source: UNCTAD Data

Governance Indicators for China

Figure 9: Governance Indicators for China



Source: WDI Data

The dimension of voice and accountability being at the lowest very strongly reflects the importance of being a "democratic country" where the ultimate power lies with the citizens of the country and not with one political party (China Communist Party) or its leaders. This can be attributed to one of the most important reasons for China not being able to perform well in its governance indicators. If we look at Figure: 9 above carefully another interesting feature that we find here is that most of the dimensions with Government effectiveness being an exception, have maintained their original position i.e., there has hardly been any improvement in terms of the value of the governance indicators within this span of seventeen years or so. The reason why we see an improvement in Governance effectiveness could be because of e-governance and the use of information and

communication technologies, especially the Internet. Corruption is another major dimension that the Chinese government has kind of struggled with for long which has shown some improvement since 2010 due to some steps taken by the government recently which considers corruption as a barrier to the country's economic development and social and political stability.

Table 3: Coefficient of Correlation of Six Governance Indicators with GDP Value Added Agriculture & Export Value Index of Agriculture

	Voice and Accountability	Political Stability and Absence of Violence/Terrorism	Government Effectiveness	Regulatory Quality	Rule of law	Control of Corruption
GDP Value Added agriculture	0.482	0.382	-0.810	-0.521	-0.632	-0.260
Export value Index of agriculture	-0.283	-0.276	0.80	0.343	0.673	0.438

Source: Author's estimates

Calculating the correlation coefficient for all the dimensions of the governance indicators we find that both voice and accountability and political stability are positively related to the GDP value added in agriculture. While all other indicators have a negative relationship with the GDP value added in agriculture. Political stability is the dimension where China lags when compared to other countries which also gets reflected through the correlation values here. The negative relationship between government effectiveness and the value added might be a result of the Chinese government trying to focus more on the manufacturing sector rather than investing in the agricultural sector. We also find a fairly strong negative correlation between regulatory quality and the GDP value added in agriculture which shows that government efforts while formulating various agricultural policies have not been quite successful in China.

Table 4 and Table 5 show the regression results for both regressions. The first regression takes the export value index of agriculture commodities as the dependent variable and the second regression considers GDP value added in agriculture (% of GDP) as the dependent variable. Also, we check for the stationarity of the variables and correcting for the same, have included different values for export value index, GDP value added in agriculture, government effectiveness, regulatory quality, rule of law, control of corruption, total production and yield (kg/ha).

Table 4: Regression Results for Governance Indicators and Export Value Index in Agricultural Commodities

Explanatory variables	Coefficient	t-value	p-value
Voice and Accountability	-68.77	-1.55	0.165
Political Stability and Absence of Violence/ Terrorism	-86.28	-1.89	0.101
Government Effectiveness	5.99	0.23	0.822
Regulatory Quality	89.94	2.47	0.043*
Rule of law	10.22	0.23	0.825
Control of Corruption	-71.55	-2.93	0.022*
Total Production	-2.61E-07	-2.38	0.049*
Yield	0.003	0.67	0.522

Source: Author's estimates *Note: * indicates 5% level of significance*

Table 5: Regression Results for Governance Indicators and GDP Value Added of Agricultural Commodities

Explanatory variables	Coefficient	t-value	p-value
Voice and Accountability	2.31	1.12	0.299
Political Stability and Absence of Violence/ Terrorism	-1.17	-1.29	0.239
Government Effectiveness	-0.69	-0.68	0.517
Regulatory Quality	-2.60	-1.15	0.290
Rule of law	3.95	1.80	0.115
Control of Corruption	0.51	0.36	0.730
Total Production	7.42E-09	1.40	0.204
Yield	0.0001	1.23	0.258

Source: Author's estimates

The regression results in Table 4 show that when the export value indices of agricultural commodities have been taken as the dependent variable, most of the explanatory variables excluding regulatory quality, control of corruption and total production turn out to be insignificant. This shows that an increase in the levels of regulatory quality and total production in the levels of agricultural commodities is associated with an increase in the export values of these commodities. Moreover, a decrease in the level of corruption also leads to an increase in the exports of agricultural commodities. However other governance indicators do not play a significant role when it comes to their impact on the export of agricultural commodities. This might be because most of the agricultural production that happens in the country is used within the country and as mentioned before, the imports have been growing much faster than the exports once China became a member of the WTO when China reversed its long-time status as a net agricultural exporter to that of the net importing country since 2004. So, in the case of China, it can be said that the export value of agricultural commodities has more to do with the change in the nature of the Chinese economy where imports have been on a continuous rise when compared to the exports of agricultural commodities. Another important aspect that one should focus on is the Chinese government's focus on other sectors, majorly the manufacturing sector. The export values of the manufacturing sector have been increasing accompanied by a fall in the export values of agricultural commodities.

Next, treating the gross value-added agriculture (as a percentage of GDP) as the dependent variable (Table 5), we see that the results change drastically and all the six dimensions of the governance indicators do not play any role when it comes to the contribution of the agricultural sector in the overall GDP of the economy. The governance indicators turn out to be highly insignificant. Also, the variables related to yield and the total production are insignificant, which reflects that an increase in the yield of the farmland along with the total levels of agricultural production will not affect GDP value added in agriculture. We also find that as the yield of the farm increases by one kg/ha, the contribution of the agricultural sector to the overall GDP does not increase by that much.

The reason behind this could be that farmers in China do not have a well-developed or formal system of domestic agriculture subsidies when compared to other developing or developed countries.

CONCLUSION

The paper brings to the forefront the impact of the various governance indicators on GVA agriculture on the Chinese economy. Starting from the year 2001, when China became a member of the WTO, we find that there has been a continuous rise in the import of agricultural commodities while China is also one of the largest producers in the world for commodities such as rice, wheat, cotton

and potatoes. The study also shows that China has a relatively low set of agricultural import tariffs compared to other WTO members and domestic support for agriculture in China remains less than that for many developed countries. Non-tariff measures have been the go-to solution for the Chinese government to reduce imports. The number of non-tariff measures for most agricultural commodities has more than doubled in the last decade. Next using the regression models the paper shows that the quality of governance through its various dimensions does not have an impact on the performance of the agricultural sector. Be it the exports of agricultural commodities or the contribution of the agricultural sector to the overall GDP, the quality of governance has not had any impact on either of them in the case of China.

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The Debt-Nomics of Freebies: Assessing the Impact of Freebies on Debt to GSDP Ratio

Chirag Chhetia[1], Diya Sehgal[2] and Ashish Singh[3]

Abstract

This paper delves into the effect of freebies on the state-to-GSDP ratio by first looking into the freebie expenditures and debt-to-GSDP ratios of two prominent Indian states, Punjab and Delhi. We take two separate cases, doing descriptive analysis for the debt-to-GSDP ratio, interpreting their variance, skewness, kurtosis, etc., and mapping the trends. We then turn up to the freebie expenditure incurred by the states and correlate them against the state-to-GSDP ratios. The data for the state-to-GSDP ratios was obtained from the Reserve Bank of India's website, while the data on freebie expenditures is sourced from the respective states' budgets. The study also analyses the state-to-GSDP ratio for all the states against their subsidy expenditures to establish the required links and show the effect of freebies on this important measure of the fiscal environment of the states. This research tried to study the relationship between the distribution of freebies by governments, its effect on state finances, and important issue of how welfare expenditure affects the debt scenario of a state. However, a clear establishment of the relationship needs further analysis with the use of advanced methodology such as regression.

Keywords:

Debt, freebies, State-to-GSDP ratio, welfare expenditure

JEL Code:

H6, I31, P44

INTRODUCTION

Freebies have occupied a central place in economic, social and public debates around the country. With implications ranging from industries such as retail, FMCG, and pharma to affecting public finance of the most complex state economies, freebies have been the talk of the town. Freebies may seem to hurt the fiscal health of the providing state. With petroleum, alcohol, and tobacco being the principal drivers for state revenue, financing them entirely from the receipts would be too much to ask given that states have a bulk of expenditures to deal with. Thus, the possible option left to finance free schemes is by resorting to borrowing. Borrowings by state governments beyond their capacity picked up after the pandemic struck. The need of the hour was to support through fiscal stimulus as the economy went to a standstill. However, many state governments borrowed well beyond their capacities to fund free stuff and also attracted caution from the Reserve Bank of India. The national exchequer flagged the situation as a matter of concern for the overall fiscal environment of the country.

The debt of India (a union of states) is determined by the debt exercised by the central and state governments, collectively termed as General Government Debt.

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For good fiscal health, government borrowing is said to be at 5% of Gross State Domestic Product (GSDP), which is the sum of the value of the final goods and services produced within a state in a fiscal year. According to a study by the Bank of Baroda conducted in 2023, Punjab has a debt-to-GSDP ratio of 47%, while it is a whopping 53% for Arunachal Pradesh. The study shows that 4 Indian states have a Debt to GSDP ratio above 40%, which is a threat to a healthy fiscal environment. Freebies also act as a tool for the redistribution of income among the poor. In some cases, it can act as a pathway to some of the necessary services for those who lack access to them. This can only work out if the benefits reach out to those marginalized sections of society for whom the schemes are intended. For instance, the Public Distribution System, run by the Food Corporation of India (FCI), played a substantial role in ensuring food security in the country when the supplies were shut.

LITERATURE REVIEW

The relationship between government-provided freebies or welfare schemes and economic growth has been extensively studied in economic literature. While the term "freebies" often carries a negative connotation, many scholars argue that well-designed social welfare programs can lead to positive economic outcomes by enhancing human capital, reducing poverty, and promoting inclusive growth. This literature review synthesizes key research findings on the positive impacts of such programs.

Fisher (1991) analysed freebies in terms of the pharma industry. The paper argues that pharmaceutical companies giving "freebies" to doctors in exchange for prescribing their drugs is both economically and ethically unsound. He argues that the freebies distort the market for prescription drugs by creating a situation where doctors are not making decisions based on the best interests of their patients but rather on the gifts they have received from pharmaceutical companies. Tripathi et al. (2014) discuss the role of freebies in brand building for FMCG products in the organized retail sector. The authors found that freebies positively impact brand awareness, customer acquisition, and customer satisfaction. Yan and Hou (2022) investigated how freebies can be used as a promotional tool to increase profits for both manufacturers and retailers. The paper considers two different scenarios: one in which the manufacturer and retailer share demand information, and one in which they do not. The authors find that freebies can be a profitable strategy for both parties in both scenarios, but that the retailer's profits are higher when they share demand information with the manufacturer. Kumar and Kaur (2022) explored the multifaceted implications of the freebie phenomenon in Indian politics. On the political front, the paper highlights how freebies have transformed into a tool of political competition, often leading to unsustainable fiscal policies and budgetary strain. In conclusion, the paper underscores the need for a balanced approach to freebies. Liu & Chou (2020) stated that freebies can be a powerful tool for marketers, but their effectiveness can be influenced by the complementarity of the freebie and the focal product. Overall, the findings of this study suggest that marketers should carefully consider the complementarity of freebies when designing promotional campaigns.

Banerjee and Duflo (2011) examined how free or subsidized services in health and education can break the poverty trap. They argue that when the poor have access to free essential services, it leads to improved health and educational outcomes, which are critical components of human capital development. Enhanced human capital increases productivity and, consequently, economic growth. Similarly, Strauss & Thomas (1998) show that free or subsidized healthcare boosts overall economic growth by improving public health and increasing labour productivity, as healthier individuals contribute more effectively to the economy. A study by Fiszbein & Schady (2009) evaluates Latin America's conditional cash transfer programs, such as Mexico's Progresa and Brazil's Bolsa Família, which provide financial assistance to low-income family's contingent on children's school

attendance and health check-ups. These programs improve health and education outcomes, fostering long-term economic growth by enhancing human capital. Filmer et al. (2000) have investigated how free healthcare services affect economic productivity in low-income countries. They find that when healthcare is accessible and affordable, there is a significant improvement in public health, which translates into a more productive labour force and contributes to economic growth.

Ravallion (2009) argues that social safety nets like cash transfers and food subsidies boost local economies by increasing poor households' purchasing power. Andersen et al. (2007) analysed that how the Nordic countries successfully combine extensive welfare programs with economic competitiveness. The authors argue that freebies in the form of free education, healthcare, and social security contribute to a highly skilled workforce, social cohesion, and economic stability, demonstrating that welfare schemes can coexist with strong economic performance.

Taking a different approach, Sen (1999) argued that the provision of free essential services like healthcare and education is fundamental to expanding individual freedoms and capabilities. By enhancing the quality of life and opportunities available to all citizens, these services contribute to a more productive workforce and, hence, to economic development. Reddy and Geeta (2024) adopting the quantitative and qualitative approaches analysed the implications of electoral freebies from the perspective of public policy and economic sustainability in India. It assessed the effects of welfare programs on fiscal deficits and economic growth in the states of Karnataka, Andhra Pradesh, Maharashtra, Punjab, Telangana, Delhi, Tamil Nadu, and Uttar Pradesh.

The reviewed literature suggests that government-provided freebies, when strategically implemented as part of comprehensive welfare schemes, can have significant positive impacts on a country's economic development. These programs enhance human capital by improving health and education, reducing poverty and inequality through social safety nets, and stimulating economic activity by increasing consumer spending. However, the sustainability and effectiveness of such programs depend on efficient implementation and prudent fiscal management to avoid adverse effects on the country's debt burden.

RESULTS AND DISCUSSION: THE FISCAL HEALTH OF DELHI AND PUNJAB

Freebies include welfare expenditure from the government in terms of subsidies, social security, and other benefits (Fisher, 1991). Punjab, for a decade, has been a state with a mounting debt burden and skyrocketing debt-to-GSDP ratio that has consistently breached the 30% mark since 2017 (RBI, State of the Economy Report, 2022). The most notable welfare measures taken up by the government included free electricity of up to 300 units per connection and aid of INR 1000 for every woman aged 18 and above.

The outstanding debt of Punjab breached more than 50% of the state GDP, triggering a warning from the RBI. Economists in the state have been warning about the dismal effect of the free welfare measures initiated by the government and that a financial crisis could be unavoidable if the current situation prevails. An analysis of the debt-to-GSDP ratio of Punjab over the years from 2006 to 2021 (Table 1) shows some interesting results about welfare expenditure and its impact on the state's debt condition.

Table 1: Debt-to-GDP Ratio of Punjab from Year 2006 to 2021

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 (RE)	2023 (BE)
47.1	40.1	36.6	35.4	34.3	33.1	31.1	31.0	30.8	31.7	34.4	42.8	41.4	41.4	42.8	48.7	48.4	47.6

Source: RBI (State Finances: A Study of Budgets)

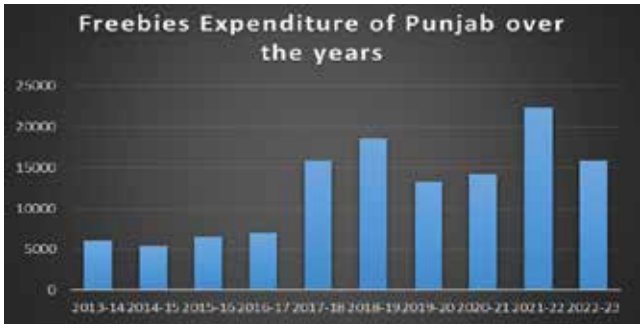
Table 2: Descriptive Statistics of Debt to GSDP Ratio of Punjab from 2006 to 2021

Mean	37.04
Standard Error	1.417
Median	35.4
Mode	42.8
Standard Deviation	5.488
Sample Variance	30.128
Kurtosis	-0.530
Skewness	0.614
Range	17.9
Minimum	30.8
Maximum	48.7
Sum	555.6
Count	15
Largest(1)	48.7
Smallest(1)	30.8
Confidence Level(95.0%)	3.039

Source: Authors' estimates

Table 2 shows the descriptive statistics of the debt to GSDP ratio of Punjab from 2006 to 2021. The annual debt-to-GSDP ratios exhibit a moderate average deviation from the mean, as shown by a variance of 5. Concerning the debt to Gross State Domestic Product (GSDP) ratio for Punjab between 2006 and 2021, a moderately positive skew is indicated by a skewness value of 0.614. This suggests that the debt to GDP ratio tends to have a right-skewed distribution, which means that there are times when the ratio is relatively high and the distribution has a longer right tail as a result.

Figure 1: Freebies Expenditure of Punjab over the years (in Rs. Crore)



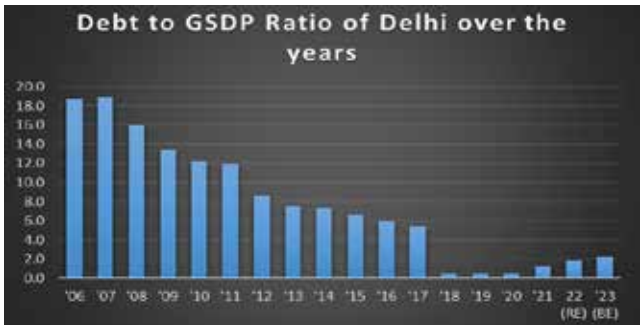
Source: Punjab State Budgets, Department of Finance, Government of Punjab

Figure 2 shows the freebie expenditure of Punjab (in Rs. crore) over the years, as taken from the state budgets published by the Ministry of Finance, Government of Punjab. An empirical analysis of the trend shows that freebie and welfare expenditure, in the form of free stuff, jumped significantly from FY17 to FY18 and in '19, steadied through 2019 to 2021, and then rose to peak levels in 2021–22. When correlating the freebies expenditure against the debt to GDP ratio using MS Excel, the correlation coefficient comes out to be 0.77, which shows a moderately high degree of positive correlation between the two variables. The two variables are associated. However, to ascertain if there is a causation associated, a proper regression needs to be done, including other explanatory variables as well. The freebie expenditure in Punjab has also added to the income and the welfare of the state, with the recent budget showing an increase in the revenue earned and fewer people below the poverty line. This underscores the positive impact that the freebies have had on the Punjab state.

THE IMPACT OF FREEBIES IN DELHI

Delhi is one of the most flourishing states in the country in terms of GSDP and revenue (RBI Bulletin, 2022). Hence, it enjoys a larger base in the state to the GSDP ratio, unlike most of its peers. The state also enjoys per capita income that is second only to Goa. Along with Punjab, Delhi has also been in the public fray over doling out high freebies. The overall impact of this expenditure has also had positive effects, with disposable income in the state increasing as the general populace has now increased its capacity to spend on essentials (Delhi's State of Finances, 2022).

Figure 2: Debt to GSDP ratio of Delhi (Graphical)



Source: RBI (State Finances: A Study of Budgets)

Table 3: Debt to GSDP Ratio of Delhi

'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	22 (RE)	'23 (BE)
18.7	18.9	16.0	13.4	12.2	11.9	8.8	7.5	7.3	6.6	6.0	5.4	0.5	0.5	0.5	1.2	1.8	2.2

Source: RBI (State Finances: A Study of Budgets)

Table 3 and Figure 3 show the state-to-GSDP ratio of Delhi from 2006. The ratio was at very high levels in the previous decades and started to decline in 2011, reaching meagre levels in 2018. An increasing trend is expected in the ratio since 2020, mainly due to high freebie expenditure.

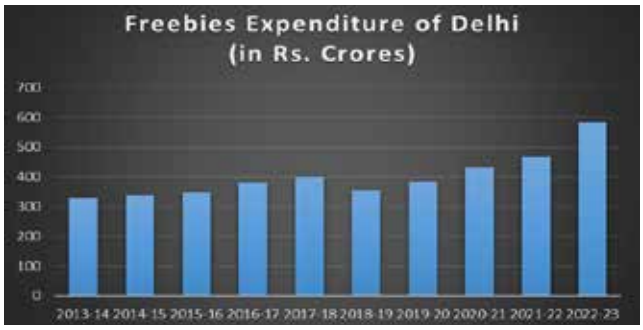
Table 4: Descriptive Statistics of the Debt to GSDP Ratio of Delhi

Mean	7.088
Standard Error	1.397
Median	6.6
Mode	0.5
Standard Deviation	5.763
Sample Variance	33.223
Kurtosis	-0.621
Skewness	0.563
Range	18.4
Minimum	0.5
Maximum	18.9
Sum	120.5
Count	17

Source: Authors' estimates

Table 4 shows the descriptive statistics analysis of the debt-to-GSDP ratio of Delhi. A variance of 33 indicates a significant degree of variability. A positive skewness of 0.56 in the debt-to-GSDP ratio of Delhi indicates that the distribution is skewed to the right, with a longer tail towards higher values. This means that there are a few years with very high debt-to-GSDP ratios, while most years have lower debt-to-GSDP ratios. A kurtosis of – 0.6 indicates that the distribution of the debt to GSDP ratio is flatter than a normal distribution. This means that there are fewer extreme values (both very high and very low) than would be expected in a normal distribution. This is a relatively unusual finding, as the debt-to-GSDP ratio is typically positively skewed. This means that there are more years with high debt-to-GSDP ratios than with low debt-to-GSDP ratios. The negative kurtosis in this case suggests that there is more variation in the debt to GSDP ratio than would be expected based on its positive skew.

Figure 3: Freebies Expenditure of Delhi (in Rs. Crores)



Source: Budget Documents, Finance Department, Government of NCT of Delhi

Figure 3 is a depiction of the freebies and welfare expenditure incurred by the state government of Delhi (in Rs. crores). An empirical analysis of the data shows that the expenditure has been on an ever-rising trend, with the major pace picking up since 2018-19 and reaching peak levels in FY 23. When correlating freebies expenditure in Delhi against debt to GSDP ratio since the year 2017-18, using MS Excel, the correlation coefficient comes out to be 0.934542, which shows a strong degree of positive correlation. The two variables seem to be moving together. However, if the increase in freebie expenditure gas led to increased debt to GSDP ratio, remains to be further analysed.

Table 5: State to GSDP Ratio of all the Indian states

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 (RE)	2023 (BE)
31.1	28.9	26.6	26.1	25.5	23.5	22.8	22.2	22.0	21.7	23.7	25.1	25.1	25.3	26.7	31.1	28.7	29.5

Source: RBI (State Finances: A Study of Budgets)

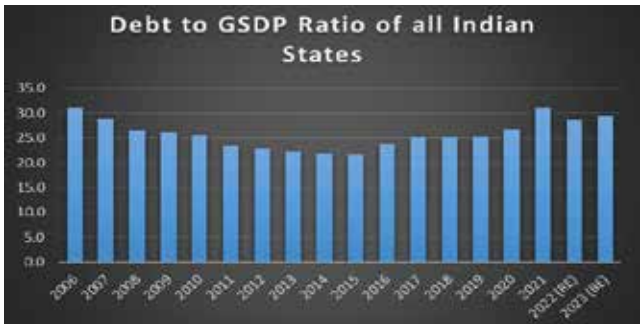
STUDY OF FREEBIES EXPENDITURE AND STATE-TO-GSDP RATIO OF INDIAN STATES AS A WHOLE

We aim to study the freebie expenditure and the debt-to-GSDP ratios of all the Indian states as a whole to show the former's effect on the latter.

Table 5 shows the debt to GSDP ratios of all the Indian states from 2006 till date.

An empirical analysis of the debt-to-GSDP ratio shows that the ratio has been above the mark of 20. Figure 4 is a graphical representation of the same. The ratio peaked to above 30 in the year 2021, mainly due to state induced pandemic support.

Figure 4: Graphical Representation of the Debt-to GSDP Ratio of all States



Source: RBI (State Finances: A Study of Budgets)

Table 6: Descriptive Statistics of Debt to GSDP Ratio of all Indian States

Mean	25.866
Standard Error	0.708
Median	25.4
Mode	31.1
Standard Deviation	3.006
Sample Variance	9.034
Kurtosis	-0.867
Skewness	0.374
Range	9.4
Minimum	21.7
Maximum	31.1
Sum	465.6
Count	18

Source: Authors' estimates

Table 6 shows the descriptive statistics of the debt to GSDP ratio of all the states. The variance of 9 in the debt-to-GSDP ratio of all the Indian states from 2006 to 2023 indicates that there is a considerable variation in the change in the ratio across different states. This suggests that some states have experienced a significant increase in their debt-to-GSDP ratio, while others have experienced a decrease or remained relatively stable. The skewness of 0.37 indicates that the distribution is positively skewed. A kurtosis of – 0.86 for the debt-to-GSDP ratio of all Indian states from 2006 to 2023 indicates that the distribution of the debt-to-GSDP ratio is slightly peaked relative to a normal distribution. This means that there are a few states with very high debt-to-GSDP ratios, while most states have ratios that are closer to the mean. When correlating freebie expenditure of all states (from 2019 to 2023) against debt to GSDP ratio of the corresponding years, using MS Excel, the correlation coefficient comes out to be 0.798102, which shows a moderately strong degree of positive correlation.

CONCLUSION

This paper aimed to ascertain the effect and the implications of freebies and welfare expenditure on the debt-to-GSDP ratio, which is an important measure of the debt condition of a state. Through two discussions, one for Punjab and another one for Delhi, we found that there was a considerable degree of positive correlation between the welfare expenditure and the ratio. The same results turned out when we repeated the analysis for all the states as a whole. The variables seem to be associated. Thus, on a conclusive note, the establishment of the proper effects of these expenditures on the debt condition needs to be established with further methodology using complex models and analyses.

Freebies have a good effect on the economy and the general public by increasing consumer spending, facilitating access to necessary services, and encouraging entrepreneurship. By offering free healthcare and education, they contribute to the reduction of poverty by improving human capital and long-term production. Welfare programs increase social equality and economic stability, while free trials and samples help small enterprises reach a wider audience. Freebies, if dealt with proper balance, can act as a tool for the redistribution of income among the poor. The need of the hour lies in balancing state expenditure to maintain an equitable level of debt to achieve the greater good of economic prosperity and development in the long run.

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The Case for Pluralist Education in Economics and Management: An Outline of Essential Criticisms

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Abstract

That orthodox or mainstream economics and management educational programmes are status quoist and not transformative is highlighted in this paper. These programmes are conservative, favouring capitalism uncritically. And they do not offer pluralistic choices to students, and thereby promote critical thinking and interdisciplinary understanding of the real-world. Instead, they revel in fictional or untrue as well as unwarranted storytelling. Criticisms on these lines point to the need for democratic overhauling of these educational programmes so as to enrich the intellectual quest of students and thereby enable them to think about context-specific sound policies for the realisation of a fairer economy and society.

Keywords:

Criticism, education, instrumental, intrinsic, pluralism

JEL Code:

A2, B5

INTRODUCTION

The university is normally expected to be an abode of calm—shantiniketan. And students in it are supposed to just study and pass examinations, not agitate. But from time to time, student protests have belied these usual expectations. The recent anti-war, pro-Palestine campus protests in the US, and the university-student-outburst in Bangladesh against economic insecurity, authoritarianism and repression leading to change of government, have shaken the world. Likewise, there were times in the past when economics students in some universities in North America and Europe had rebelled against neoclassical economic education in the classrooms, which could not foresee and explain the 2007 financial crisis. They were backed by academic economists questioning the value of the dominant, monolithic economic tradition. Also, the educated youth had preponderantly participated in the anti-inequality and anti-corruption occupy Movement in the US and in the Indian anti-corruption movement too during the year 2011.

Social phenomena such as these raise the following academic questions to be addressed (Clarke and Mearman, 2003): Should education be instrumental or intrinsic? Should students be not exposed to the real-world socio-economic and managerial problems and the diverse explanations and solutions for them? Should there not be academic freedom as the fundamental right to study, teach and research a diversity of viewpoints? These questions constitute the exploratory research-concern of this review paper with regard to economics and management educational programmes. And this investigation leads to the discovery of certain

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common intellectual deficits in them to be addressed.

According to Clarke and Mearman (2003), intrinsic education, which is undervalued, "is true education; it is about critical (evaluative) and analytical thinking, comparative thinking and intellectual open-mindedness or emancipation. Openness and intellectual liberalism can lead to the development of critical world views, which in turn might lead to transformative action." By contrast, instrumentalist education, which is glorified and demanded, aims at "reproducing the existing social system as it is via socialization or even indoctrination with the purpose of creating consumerist, socialized citizens susceptible to advertising and mainstream news management; and creation of a useful and productive as also compliant and pliable workforce. The goal of employability is accepted by students and by wider society and this leads students to seek and demand specific learning, skills and training. Meeting such demands makes students adept at solving problems but impairs their ability to understand and to think independently and critically."

In light of this, the problematic points of departure for this paper are as follows. Both economics and management curricula are essentially instrumental, and not intrinsic. There are problems even under their instrumentalist orientation. For example, many management writers (especially consultants) write about corporations "as if they were rational decision-makers, actors in their own right, with clear goals and identifiable preferences for outcomes." In doing so, "the critical management task of enabling people within the organization to work together cooperatively simply disappears." Little wonder that management advice turns out to be dysfunctional (Hurst, 2020). And according to biology and psychology professors, economists abstract from ungeneralisable context-specific complex reality with the simple universal assumption that "individual behaviour can best be predicted by assuming that each individual will take the actions that best achieve his objectives" on the grounds that there is "no way of predicting what particular irrational action an individual will take." Consequently, the reality of people acting in ways that appear difficult or impossible to make consistent with the rationality approach to understanding behaviour is ignored or abandoned (Friedman, 2001). Further, economists and managers are not organically linked to real-world people; they therefore assume efficiency to be more important than justice. However, justice matters most to people at large and as such the ideal or good society must be conceptualised and operationalised on the basis of human dignity and social justice concerns (Brockway, 2001; Gilabert, 2023).

It is in this backdrop that this paper outlines the representative criticisms that have emerged from within the disciplines of economics and management against their dominant intellectual orientations. The contribution of Clarke and Mearman (2003) is used as the excellent template for framing the discussion in this paper. Arguments in favour of pluralism are highlighted and endorsed although to what extent and how undergraduate economics education can be changed on pluralist lines remains rather vague in the absence of adequate literature on the experiential responses of students and teachers wherever the pluralist change has been effected, partially or fully.

CRITICISMS FROM WITHIN ECONOMICS DISCIPLINE

Within the economics profession, broadly and roughly speaking, the American Economic Association and the International Economic Association serve the cause of Orthodox Economics standing for capitalism or free-market society with corrective actions if needed. In contrast, the World Economics Association (WEA) serves the cause of Heterodox Economics loaded with diversified transformational discourse for fairer society via critiquing the functioning of capitalism. It also supports pedagogy underpinned by pluralist philosophy thus: "… we have a diversity of people, views, perspectives, and scientific paradigms... By encountering differences, growth opportunities happen for individuals and collectives. We do not have to be the same, think along the same lines, and agree with each other in order to express solidarity. But we have to respect the differences and recognise the unknown, instead of trying to push for illusory certainty. Recognizing complexity as an immanent feature of reality implies that more than one single answer to the research questions can be found, and in some cases, there are no rational rules for adjudicating which of them is the truer. Indeed, the search for certainty as the equivalent of truth is impossible… Pluralistic thinking and practice have the potential to respond to some of the needs of our current,

uncertain times by facilitating individual and collective adaptation to the new situation that we are all in with all our differences. Although a pluralistic approach implies an open, dialogical, and tolerant attitude toward alternatives, it does not mean the lack of criticism, or the lack of scholarly identity… Pluralist practice and thinking is not about converging views in society and science and silencing any kind of dissent. It is about shifting consciousness from one that is based on division, and therefore divisive thinking that perceives threat in any expression of differences from the perceived truths, towards relational consciousness that is based on deeply ethical and non-violent attitude towards other social, public, and academic contexts" (Dereniowska, 2020).

Economics teaching is overwhelmingly detached from the above pluralist philosophy. Students are expected to pick up instrumentalist orthodox economic content without asking any questions about its framework. Heterodox economists contend that students are absorbing wrong content unlike theirs which has useful, realistic explanations and true knowledge. Orthodox economics is blackboard economics beautifully illustrated with diagrams and mathematics, about an imaginary world that does not exist. Mathematical beauty is mistaken for truth and so the "predominant strategy is to build mathematical models and make things happen in these analog-economy models rather than engineering things happening in real economies" (Syll, 2022). By contrast, Clarke and Mearman (2003) have argued that students can benefit from the real-world Marxist pedagogy, "if they are introduced to it as an integrated approach by incorporating history, social studies, spatial analysis, etc. into a philosophical framework and also as a methodology, theory, policy and practice based on mathematical modelling, graphical analysis, dialectical logic, and materialism/realism. Marxism is deemed more relevant and realistic as it might be more engaging and thus more able to affect the cognitive domain (thought and knowledge), which in turn can lead to developments in the affective domain (attitudes and values). Marxist economics can also deal directly and openly with political aspects. This might allow critical thinking and also engagement, as perceived relevance would most likely increase." However, students are discouraged to deal with the Marxist Economics variant of the intrinsic heterodox thinking. There are four reasons underlying the bias against Marxism. First, "under the present system of imposing market forces on education and government funding universities, dominated by orthodoxy, according to research quality, rating that quality by publications, and rating publications by journal, heterodoxy will be marginalized with a reduced recruitment of heterodox economists, especially the Marxists". Secondly, "there is a shortage of economists trained adequately to teach Marxist economics even as the approach of current orthodoxy to the history of economic thought is such that it discourages pluralism and tends to bring rival theories into disrepute. The orthodoxy holds an unchanging belief in a monolithic 'science' of economics, which is taken to disallow plurality." Thirdly, "students who have already been trained in orthodox ways find it difficult to forget them when they are introduced to individual units of Marxism." Finally, "the socialization process in economics to justify the current economic system is too strong for teachers and students to deviate from the path dependency of the orthodoxy."

Orthodox Economics, also loosely known as neoclassical or mainstream economics, idealises market capitalism as "the one that obtains the most advantages with the least use of resources." In other words, economic efficiency is achieved by "full employment of resources in the least cost manner to produce combination of goods and services that consumers most desire. Competition between numerous buyers and sellers of privately owned property will automatically lead, as if by an invisible hand, to the economically efficient outcome," statically and dynamically. Management, which converts inputs into outputs in productive organisations is assumed to be perfectly rational and so efficient in its decision making and implementation processes contrary to the renegade economist Harvey Leibenstein's behavioural theory of non-optimal management function (Mefford, 2017), and evolutionary psychology's alternative to the rationality assumption by a theory of mistakes (Friedman, 2001). Moreover, such market capitalism, which glorifies individualism, is said to be the ideal society wherein the right to life and the right to voluntarily exchangeable property are sacrosanct, and they are protected by the state, which has got no other business to do.

Market capitalism's Microeconomics and Macroeconomics, however, just do fictional storytelling as follows (Myatt, 2023): In Microeconomics, "economics is a val-

ue-free science, with a settled methodology, and a broad consensus among economists about most economic issues. Demand and supply are used everywhere leading to the conclusion that markets are generally efficient with interaction between self-interested and rational buyers and sellers. Government regulations like minimum wages or rent control, are undesirable and end up hurting those they are meant to help." In Macroeconomics too, "perfectly competitive market structure is used everywhere. In the financial or loanable funds market, there is efficiency with all participants having perfect information. It contributes to great wealth creation rather than instability and white-collar crime. In the labour market, minimum wages and unions are paraded as villains responsible for increasing structural unemployment. Unemployment is blamed on the failure of wages to fall or fall quickly enough. And whether government spending will help kick-start the economy out of a deep recession is doubted. Such claims are taught with hubris in classrooms despite the "difficulty of testing hypotheses in macroeconomics."

By contrast, Heterodox Economics, also known as Real-World Economics, justifies itself as based on critical realism as the appropriate social ontology for economics and on grounded theorisation unlike the imaginary, fairytale orthodox Economics. Lee and Cronin (2016) elaborate this fundamental criticism as follows: "For any factual field of inquiry or scientific research field to exist, its object of study must be real (as opposed to fictitious or non-existent) and relate to the problems and issues that are the focus of the research community. Moreover, the methods used by the researchers to study the objects and address the problems and issues need to be grounded in the real world. Heterodox economics is concerned with explaining and advocating changes in the real historical process of producing the social surplus that provides the flow of goods and services required by society to meet its recurring needs and to promote the well-being of those who participate in its activities. In other words, heterodox economics is a historical science of the social provisioning process, and this is the general research agenda of heterodox economists." This is not all. "Heterodox economic theory is not a pre-existing doctrine to be applied to an invariant economic reality. Rather, there are many heterodox theoretical arguments which appear to contribute to its construction, but there is no reason why they should command blind acceptance; and, in any case, they fall short of making a comprehensive theory. Consequently, new theories are needed to fill the gaps and omissions."

According to Leveson-Gower (2018), "The conformity in economics teaching in many ways is the most damaging aspect of our current economics discipline. Thousands of graduates all round the world enter work each year with the impression that there is only one way of thinking about organising our economies. Innovative and critical thinking is crushed just when we need it most given our current social, environmental and economic crises…Most economists agree that monopolists will resist competition. Mainstream economists control access to and teaching in top university departments, an effective monopoly. They tend only to be trained in one form of economics precisely due to the crisis of conformity, so their main interest is in maintaining the status quo." And this has given rise to two problems of contemporary economic pedagogy (Hadas, 2018): "economics undergrads receive more of an indoctrination than an adequate education. The curriculum is narrow, the learning is rote and mathematical models receive far more attention than actual data; and the economic models which the students memorise are mostly close to useless as they are based on false assumptions."

In light of this, the case for heterodox economics as the badly needed non-conformist economics education is superbly made by Denis (2009) thus: There are "two salient facts about the world. The first fact is that there are, not one, but many sciences of economics. To illustrate: as well as the neoclassical family of schools of thought– including neoclassical Keynesians, monetarists, new Keynesians, new classical and real business cycle theorists, new institutionalists, new economic geographers and analytical Marxists – there is a constellation of heterodox schools, including Post Keynesians, Marxians, Austrians, institutionalists, Georgists, Associative economists, feminists, and critical realists, as well as Muslim, Christian and Buddhist economists, in so far as they regard their religion as informing their economics…the basic fact of interest here is indisputable. There are many economics: many sciences, many practices, many visions and paradigms of economics – that is simply a fact that we have to recognise and deal with. The second salient fact is that the teaching of undergraduate economics

is – given this heterogeneity within the discipline – remarkably homogeneous. Typically, undergraduates are taught a core of mainstream textbook microeconomics and macroeconomics in their first two years, alongside courses in mathematics and statistics, and then a range of optional applications of that core to specific topics in such specialisms as financial economics, industrial economics, labour economics, health economics, and monetary economics, in their final year. Economics is typically seen within the discipline as analogous to engineering – there is thought to be little valid or interesting controversy on fundamentals, and what controversy there is can only be addressed on the basis of a common technical apparatus: the mastery of this technical basis is therefore the principal or sole preoccupation of undergraduate, and indeed postgraduate, tuition. The degree to which we are systematically failing to expose our undergraduates to alternative paradigms should not be underestimated."

There is, thus, a "manifest contradiction between the plurality of the discipline and the singularity of the induction into it that the undergraduate students receive." And "this contradiction cries out for resolution by giving our students a pluralistic education in economics, an education based on controversy. Further, education based in controversy is capable of delivering benefits for staff, students, employers and the polity of which they are citizens, via the development, in a manner closed to the current monist curriculum, of the students' intellectual independence and critical judgemental skills. A widespread concern is that allowing pluralism will be tantamount to diluting standards… this concern is misplaced… pluralism itself constitutes a demanding standard. Finally, while the current subject benchmark statement for economics is seriously deficient when viewed through the lens of pluralism, it would be possible to draft a benchmark statement which would establish pluralism as the standard by which undergraduate education in economics should be measured" (Denis, 2009).

A sensible conclusion against Orthodox Economics is also definitely that of Myatt (2023): "…value judgements pervade economics and economic textbooks…there are deep divisions within the profession, and …testing hypothesis is full of difficulties that makes reaching firm conclusions over even simple issues (like the effect of minimum wages) rather difficult…the demand and supply framework is synonymous with perfect competition, and noncompetitive market structures lead to different conclusions. The key issue is one of model selection." Apart from Myatt (2023), there are alternative pluralistic economics textbooks such as Hill and Myatt (2010), Saros (2019), Komlos (2023), and Goodwin (2020), and heterodox course outlines such as Baiman (2024) which are unfortunately not widely used for pedagogical purpose. And to our knowledge, there are no full-fledged heterodox undergraduate and postgraduate programmes anywhere in the world.

All the blunt criticisms against Orthodox Economics as mentioned above notwithstanding, there is still wholehearted praise (McKenzie, 2009) or qualified commendations about economics (e.g. Chen, 2020; Colander, 2009) that modern mainstream economics "deserves praise, not nagging", as it has progressively modified Orthodox Economics. Moreover, the recent modification of orthodox economics in the name of CoreEcon curriculum (The Economy 2.0 Microeconomics & Macroeconomics), which is hailed as "more engaging than standard courses and puts economic history back into economics teaching." Wendy Carlin and Samuel Bowles are the leaders of this modificatory movement (Bowles and Carlin, 2020), which is welcomed by the International Economic Association. However, "it determinedly and transparently sticks to teaching economics as if there was only one approach to analysing economic phenomena. It does not support critical reflection based on an understanding that there is more than one way of thinking about the economy and they do not give the same answers to policy questions" (Leveson-Gower, 2018). This is a bone of non-negotiable contention among the heterodox economists.

All the glee obtained from praising mainstream economics, however, evaporates into thin air with the way iconoclastic Keen (2011) has elaborated on the "absurdity, the absence of simple realism, the nonsensical hypotheses and unforgivable errors in logic" (Amin, 2015) in mainstream economics: "Market demand for a product will not fall smoothly as its price rises. The theory of the firm that price is set by supply and demand and profits are maximized by equating marginal cost and marginal revenue is false. The theory of supply based on the concept of diminishing marginal returns is false. Supply curves are likely to be flat, or even downward-

sloping. That wages in a market economy reflect workers' contributions to production is false. And measures that economists argue would reduce unemployment may in fact increase it. The theory of capital is logically inconsistent. Profit does not reflect capital's contribution to output, and changing the price of capital relative to labour may have perverse impacts on demand for these 'factors of production.' Contrary to what economists tell their students, assumptions do matter. Applying static (timeless) analysis to economics when the economy is clearly dynamic itself is invalid. Economic policy derived from static economic reasoning is likely to harm rather than help an actual economy. As regards macroeconomics, there is the bizarre fact that the people who had the least inkling that a serious economic crisis was imminent in 2007 were the world's most respected economists, while only rebels and outsiders like Keen himself raised the alarm. The economic theory of asset markets, known as the 'Efficient Markets Hypothesis' is wrong. In the real-world investors do not have identical, accurate expectations of the future and equal access to unlimited credit. Financial markets cannot be efficient and finance and debt do affect the real economy. The proof that markets are efficient is itself flawed!"

Since, to our best knowledge, no mainstream economist has effectively countered the theoretical counterpoints of Keen (2011) as mentioned above, we must seriously take what Keen has been saying since long as correct. Having reckoned with the devastating critique of heterodox Keen, we also need to recognise a serious problem in dealing with the heterodox camp itself. There is too much of diversity among the heterodox economists and there are bewildering theoretical battles among themselves, the sorting out of which is not relevant for undergraduate education. It can be taken as a tough call for economics students and teachers at the postgraduate and doctoral levels of education. A viewpoint to be probed at the advanced level of education is that although every heterodox tradition is grounded in the real-world, no single heterodox economic current is completely shockproof. This is not all. There is also "too much of intellectual differentiation within some of the alternative schools of economic thought. For example, Post-Keynesian Economics is perhaps the best antidote to the neoclassical economics (Aboobaker et al., 2016), but there are so many variants in this school that this could result in students wasting their time over variegated intellectual show-offs." In which case, how can we say that it is different from wasting time over useless monistic neoclassical economics? "Searching for alternative economic thinking could thus even collapse into obscurantist post-modernism" (Bose, 2021).

As such, economics becomes the most difficult subject to study when we factor in all the diversity of heterodoxy in relation to the dominant mainstream views. The history of economic thought, which is usually not taught, can be split among 45 or even more schools of economic thought with each one again having a few or many variants, going by the listing from the History of Economic Thought Website and elsewhere. Finding out the contemporary and futuristic relevance of these schools could be a very daunting experience. At least 6 to 9 major schools need to be known for simultaneously unlearning and learning economics in relation to the omnipresent neoclassical school (Chang, 2014; Thornton, 2014).

Keen (2011) has proposed that "a twenty-first century economics could emerge as a mélange of five alternative schools of thought, viz. Austrian Economics (that does not have a slavish devotion to the concept of equilibrium); Post-Keynesian Economics (that emphasizes the fundamental importance of uncertainty and bases itself upon the theories of Keynes and Kalecki); Sraffian Economics (based on the concept of the production of commodities by means of commodities); Complexity Theory and Econophysics (which apply concepts from nonlinear dynamics, chaos theory and physics to economic issues); and Evolutionary Economics (which treats the economy as an evolving system along the lines of Darwin's theory of evolution)". And he has strongly advised students thus: "Do basic courses in mathematics (calculus, algebra and differential equations), computer programming, history and sociology, rather than the additional fare neoclassical economists prescribe. If you are really lucky, and you have an engineering department that teaches system dynamics, do those courses. Download and become familiar with programs like QED, Vensim, NetLogo, and build your own dynamic models…." And, finally, like him, "have faith in humanity's ultimate capacity to develop a realistic theoretical perspective on how a complex monetary market economy functions, and

to leave behind the neat, plausible and wrong creation that is neoclassical economics" (Bose, 2021).

Keen's proposal and pieces of advice are not relevant for the lower undergrad level of education. By contrast, Staveren (2014) is more effective for undergrads. She has proposed a controlled alternative in order not to lose heart in this regard. She proves pluralism as good science, allowing space for competition between theories and creating the room for complementary, context-dependent explanations, with worldwide examples in her textbook by focussing on "Social Economics, Institutional Economics, Post Keynesian Economics and Neoclassical Economics as the most influential economic theories today."

Independent of all the above intricate commentaries and suggestions, the details of which are not dealt with here, just following the deeply honest self-critical reflections of the Nobel-laureate Angus Deaton can reveal why rethinking economics to go beyond a single school of economic thought is an imperative now. Having spent 50 years in economics teaching and research, Deaton (2024) has unabashedly pointed out that orthodox or mainstream economists, "who have prospered mightily over the past half century, might fairly be accused of having a vested interest in capitalism as it currently operates". They are useless to solve the problems of the people at large as long as they do not reckon with issues of power, philosophy and ethics, efficiency vs. equity, empirical methods and humility. It is very instructive to note how he has succinctly addressed economists thus: "Our emphasis on the virtues of free, competitive markets and exogenous technical change can distract us from the importance of power in setting prices and wages, in choosing the direction of technical change, and in influencing politics to change the rules of the game. Without an analysis of power, it is hard to understand inequality or much else in modern capitalism. In contrast to economists from Adam Smith and Karl Marx through John Maynard Keynes, Friedrich Hayek, and even Milton Friedman, we have largely stopped thinking about ethics and about what constitutes human well-being. We are technocrats who focus on efficiency. We get little training about the ends of economics, on the meaning of well-being—welfare economics has long since vanished from the curriculum—or on what philosophers say about equality. When pressed, we usually fall back on an income-based utilitarianism. We often equate well-being with money or consumption, missing much of what matters to people. In current economic thinking, individuals matter much more than relationships between people in families or in communities. Efficiency is important, but we valorize it over other ends. Many subscribe to Lionel Robbins' definition of economics as the allocation of scarce resources among competing ends or to the stronger version that says that economists should focus on efficiency and leave equity to others, to politicians or administrators. But the others regularly fail to materialize, so that when efficiency comes with upward redistribution—frequently though not inevitably—our recommendations become little more than a license for plunder. Keynes wrote that the problem of economics is to reconcile economic efficiency, social justice, and individual liberty. We are good at the first, and the libertarian streak in economics constantly pushes the last, but social justice can be an afterthought. After economists on the left bought into the Chicago School's deference to markets— "we are all Friedmanites now"—social justice became subservient to markets, and a concern with distribution was overruled by attention to the average, often nonsensically described as the "national interest." The credibility revolution in econometrics was an understandable reaction to the identification of causal mechanisms by assertion, often controversial and sometimes incredible. But the currently approved methods, randomized controlled trials, differences in differences, or regression discontinuity designs, have the effect of focusing attention on local effects, and away from potentially important but slow-acting mechanisms that operate with long and variable lags. Historians, who understand about contingency and about multiple and multidirectional causality, often do a better job than economists of identifying important mechanisms that are plausible, interesting, and worth thinking about, even if they do not meet the inferential standards of contemporary applied economics. We are often too sure that we are right. Economics has powerful tools that can provide clear-cut answers, but that require assumptions that are not valid under all circumstances. It would be good to recognize that there are almost always competing accounts and learn how to choose between them."

In light of this, it is clear that the battle between orthodox economics and heterodox economics is essentially the

battle between defenders of capitalism and those who want to save capitalism from itself or find alternatives to capitalism. In the backdrop of this intellectual battle, how to design and implement pluralistic undergraduate economics courses over three or four years that are manageable by both the students and teachers is a challenging task, easier said than done. All the same, economic courses examining alternatives to capitalism can be found in some universities (e.g. Willamette University) or from Union for Radical Political Economics. And economic courses can be designed and implemented according to the viewpoints of Stiglitz (2019) and Deaton (2019) about saving capitalism from itself by making it progressive.

CRITICISMS FROM WITHIN MANAGEMENT DISCIPLINE

To our knowledge, there have been no reports of management students rebelling against what they are taught. A passionate case for saying goodbye to the education imparted by the business schools, though, has been made by some management professors. There are no case studies to our knowledge to pinpoint how the criticisms in this regard have been actually addressed in imparting management education.

However, we gather from Spencer (2020) and Parker (2018) that "ideas arising from business schools have led to bad management and malevolent practice within firms. Corporate fraud and toxic work practices have been linked directly to the spread of ideas in and through business schools. Business schools do not allow for the discussion of alternative ways of managing and organising economic activity. In particular, they do not enable – via critical scholarship and teaching – forms of management and organisation that subvert the dominant shareholder value model." Furthermore, Purser (2024) has portrayed well how management education has been promising a better workplace since long but why it has delivered nothing but more creative ways of brutally exploiting people.

Parker (2018) has gone ahead more than anyone to argue that "the sort of world that is being produced by the market managerialism that the business school sells is not a pleasant one. It is a sort of utopia for the wealthy and powerful, a group that the students are encouraged to imagine themselves joining, but such privilege is brought at very high cost, resulting in environmental catastrophe, resource wars and forced migration, inequality within and between countries, the encouragement of hyper-consumption as well as persistently anti-democratic practices in work organisations."

Parker informs us that students who attend the business school are not necessarily selfish, seduced by the glamour of power and wealth. They do have an interest in realising a better economy and society in the future. But the business school in many parts of the world has been "a very clear case of the private goods argument. It has sold itself on its usefulness for individuals, shouting about salary increases, the opportunity to work in exciting places, jump on aeroplanes a lot, and do important things for which you will be admired. The appeal has been to make the most of yourself, to become the sort of person who gets jobs with global blue-chip corporations, to be a leader. These are not appeals to the collective, to the social, but to the student who means business, who wants a job that pays well and allows them to live in London, New York, or Tokyo, striding purposefully with a well-tooled briefcase into a mirrored skyscraper. Business schools have made it difficult to see their products as public goods, since they relentlessly market self-interest, shouting loudly at passing customers…Modules on Business Ethics or Sustainability or Diversity or Corporate Social Responsibility are just add-ons, not the core elements of a business course. The idea that there might be many different ways of doing business, of arranging the economy, of imagining forms of organisation, is not built into the school in a much more fundamental way than this. The United Nations initiative on the Principle for Responsible Management Education and the minority of academics of Critical Management Studies have no leverage in terms of actually changing what business schools do. Students are told that there are no choices out of pluralist perspectives about business and management. They are not given any sense that the world could be organized differently." However, "the young people who are considering studying business in the Global North know that the business school is a tarnished institution and that businesspeople are considered by many to be crooks or dullards…They also know that the Earth is warming fast, and that bankers' salaries are telephone numbers whilst in some other quarters of the world dead-eyed children starve in their mothers' arms. They know

that people sleep in the doorways of the shops in their cities, and that sometimes you can taste the chemicals in the air, which means that you often wear a mask. They know that adverts lie and marketing is a glossy sham, and that animal species are becoming extinct at an accelerating rate. They know that the sea is full of plastic, people in sweatshops in Bangladesh make cheap clothes for them, and that a McDonald's double cheese and fries' diet is bad for you. They also know that businesses try to avoid paying taxes, and regularly conceal problems with their products. None of this is new to students. None of this shocks them" (Parker, 2018).

According to the business schools, if we really want to understand the contemporary economy, the right place to start is the corporation which the management scholars define as a way of directing and controlling production. They avoid the uncomfortable problematic of clearly defining what exactly a corporation is. For, "the corporation is best seen as a hydra—a being with many faces. It is a many-headed amorphous beast. It means very different things in different disciplinary areas. For lawyers, it is a legal person—or a nexus of contracts; for economists, it is a hierarchical mechanism which is used to coordinate production and exchange; for anthropologists, it is a community of people which gradually becomes a non-human actor; for geographers, it is a mechanism for spatializing flows of capital, expertise and goods; for political scientists, it is a mechanism for distributing power; for sociologists, it is an institution which coordinates social relations; for accountants, it is a production of various recording technologies; and so on and so forth. There are hundreds of different definitions" (Baars and Spicer, 2017).

Students are not told that the corporations are not the dominant economic form. The fact is that many more people in the world are employed by cooperatives than are employed by corporations. There is indeed a variety of organisational forms which people use to engage in economic activity. Employee-owned organisations are one eminent example, and they do present a viable alternative to the corporate form (Baars and Spicer, 2017), but they are not discussed and upheld in the classrooms.

There are many problems due to corporations which the business schools condone or do not honestly deal with. They are listed out by Baars and Spicer (2017) as follows.

Corporate power is problematic for democracy within and outside of workplaces. Corporation's power allows it to continue "to produce the negative externalities of widespread environmental and social harm." The corporation is irresponsible by being a psychopath. "Corporations have a callous disregard for others and are motivated by pure self-interest" which is glorified by mainstream economics. Individuals "at work within the corporation set aside their own moral convictions when taking decisions in the name, and for the benefit, of the corporation." There are indeed increasingly disastrous economic, social and environmental consequences caused by large corporations. "Gains are often privatized while various costs are socialised, which become the responsibility of nation-states, communities, and individuals. For example, when a large firm downsizes, it reaps a significant gain in its share price—resulting in private gain for investors. But this decision also creates significant external social costs such as unemployment. These costs are picked up by families, local communities, local governments, and the nation-state…What is particularly insidious about the corporation is its limited liability structure, which allows individual shareholders to avoid taking responsibility for corporate wrongdoing. Corporations are simultaneously all-powerful and evanescent. They are a separate legal entity from their owners.

The 'corporate shield' created through its separate legal personality protects individuals within the corporation. For example, when large corporations have been found responsible for death or damage to health, key decision-makers like senior executives are often able to avoid prosecution through pushing responsibility onto the company. The company, in turn, shifts the costs of fines onto workers and consumers!

This is not all. Corporations are criminals as they are implicated in the death of thousands of people each year. Internal dynamics within corporations often mean that speaking up about crimes committed within the firms is difficult. They have "no soul to damn and no body to be kicked," so to say. There is really the difficulty of finding a body which can be held guilty. Corporations also propagate ideology of the legitimacy of the corporation itself and the Corporate Social Responsibility ideology as well, which often involves "false truth telling"—that is, the telling of a partial truth. Corporations do 'game'

law to their advantage. By subjecting itself to state-made criminal law, the corporation puts itself on an equal footing with individual citizens. This legitimises the corporation while at the same time enabling it to wield its power to avoid ever actually being prosecuted.

The central point is that because the business schools ignore the diversity in defining corporation as mentioned above, they fail to undertake interdisciplinary study of corporations which might "inspire more creative and effective solutions to the problems" they have created as pointed above. Besides, they wilfully entrench non-critical thinking among the students as future managers.

There is also another crazy problem in terms of unending meaningless language of management, entertainingly documented by Spicer (2017) of the Bayes (earlier CASS) Business School, as follows: "Rolling out bleeding-edge innovation; going forward by getting granular; taking a helicopter view to doing some blue sky thinking; circling back before close of play; proactively pushing the envelope; reaching out to get on the radar; taking a bio-break to avoid boiling those low hanging fruit; synergizing some sunsetting; having a cold-eyed review of core competencies; diarizing some drilling down; thought leaders touching base in town hall meetings; having your human capital do some horizon scanning; benchmarking best practice. Unintelligible to the uninitiated, but all too familiar to those who are unfortunate enough to be exposed to this kind of piffle everyday of their working lives. This is business bullshit…Noteworthy is the fact that there is a sheer impermanence of management concepts given the ever-changing management fads and fashions. And there is grandiose management jargon coming from literally a management fashion industry consisting of a group of intermediaries, such as consultants, gurus, the business press, business schools and think tanks whose business is to create, distribute and stoke the consumption of new management fashions. In all this so-called bullshit economy, "statements come forth with a lack of facts and details, a lack of logic, a lack of comprehension by the audience, maligned intention and the use of a vocabulary that is purposefully vague and strategically and calculatedly attempts to mislead the audience." That is bullshit par excellence. And "…as bullshit grows in organisations, it can begin to increasingly take up more of the time and effort of people working within that organization…As the sheer amount of time and resources devoted to producing, circulating and consuming bullshit increases, it leaves little room in an organization for much else…As people give up fighting to find time and space to do the work they think is meaningful, these very tasks stop getting done.

As a result, the bullshit-work/real-work ratio begins to tip in favour of the bullshit. When this happens across organization, it can mean much of the core work, which actually helps the organization to fulfil its central purpose, is neglected…the organization starts to be hollowed out.

As the organisation's core tasks are neglected, people start to ask why it exists in the first place. They lose trust… Sadly, the growth of business bullshit has stopped some of our best organisations from understanding why they exist in the first place…Even when a gaping hole opens up between management rhetoric and day-to-day reality, it is largely ignored and the responsibility for failure is pushed onto workers."

All this madness of business bullshit from business schools flourishes on account of six factors: "(1) bullshit jobs (work disconnected from any meaningful end or goals); (2) individual delusion (driven by yawning gaps between what individuals think they can do and what they can actually do; (3) insecurity about one's own professional or occupational identity and the various attempts to building up a viable sense of who we are in a world which constantly rips any stable identity to pieces; (4) inability to question bullshit spewing from others and ourselves; (5) a growing bureaucracy that generates a massive body of jargon to keep itself and others busy; and (6) an even more virulent democracy on top of this bureaucracy, which continually reforms the organization in the hope of producing some kind of perfect utopia of productivity and creativity, a utopia which never arrives"!

Spicer (2017) has substantiated his arguments on the above lines with evidential support collected from Nokia, BBC, National Health Service in the UK, banking and financial crisis of 2008, university reform, various change initiatives in large business organisations in the name of 'lean manufacturing movement', 'big data movement', 'empowerment', 'team work', and 'talent management' as HRM, 'total quality'/ 'six sigma'/, 'lean' as operations management, 'level five leadership', public sector branding, nudging and the like.

There are wonderfully disturbing revelations for the reader in all this: "Best of the organisations have imploded on their own bullshit. New management fads create hopes of disruption but do not increase economic performance and end up delivering costly disappointment. The management function collapses due to decoupling of talk and practice. Managers are busy wanting to "look good," as self-confident and attention grabbers, which is much ado about nothing as they are not really keen about efficiency or effectiveness". Very intelligent people thus end up as very banal and stupid, and the core working of organisations goes for a six.

Business schools are still defended despite earthshaking criticisms as above. For Lorenzi (2012), "business schools represent a last stand and a compelling argument for capitalism". There is value in their education. Critics of business school education have no empirical backing. And for Admati (2019), given that "trust in capitalism and big business is low", especially among young people, "business schools can help restore trust in capitalism" by embracing "civic-minded leadership, a way of conducting business and citizenship based on a holistic understanding of how individuals , corporations, and governments interact, one that emphasizes the importance of good governance mechanisms and seeks to create a system in which capitalism and the market economy can deliver on their promises." In this regard, Harvard Business School as the archangel of management education in the world takes pride in boasting about its mission: "We educate leaders who make a difference in the world."

In light of all this, a more worthwhile investigation would be as to how the Bayes Business School, Cardiff Business School and the like have got into the business of changing the world reinventing themselves with a clear public value purpose to bring "humanity, sustainability, generosity and innovation to the business sector."

CONCLUSION

In this paper, an attempt is made at taking stock, in general, of the internal critiquing that has emerged in the subject matters of Economics and Management. The purpose is to communicate the gist about it so as to unsettle the settled minds of undergraduate students and teachers concerned in the Indian context of no protest against economics and management curricula, and therefore no change effected in them from above.

For the defenders of market capitalism as the best of all possible worlds, Orthodox Economics comes in handy as a brilliant conman-imagination which persists as a monopolistic intellectual monoculture, leading to a waste of time as also wrong derivation of policy suggestions in going through it.

For the students and teachers who wish to achieve a fairer society because life is unfair for majority of people under capitalism (Brockway, 2001), hope for the future must lie in education and the communication of ideas about transforming capitalism as found in the intrinsic as well as instrumental Heterodox Economics concerned about social provisioning to ensure well-being of people in the world.

Yet, as Clarke and Mearman (2003) have pointed out, the history of education suggests that "educational agenda has been controlled by the authorities and their institutions to serve the goal of education to be one of instrumentally reproducing society as it is, complete with the existing inequalities". This paper has revealed that this holds good very much in Economics and Management programmes almost all around the world.

Current economics education is by and large still an apology for capitalism. Its monolithic imaginary story of perfect competition is similar to the unending business bullshit coming from business schools to constantly feel euphoric about the virtues of imaginary capitalism.

The jabbering consensus dumped on management students is that "capitalism is the only way that the world can work, because this is how people and markets and organisations are." And this is fabricated to be around us, "in the career talks and sponsored lecture theatres and the best-selling textbooks" which are nothing but clones of one another.

The call for critical thinking via pluralism and interdisciplinary thinking for better understanding of reality from within economics as represented by Denis (2009) resonates well with a similar incendiary as well as regenerative call from within the business schools as represented by Parker (2018): "Let's bulldoze the business school". And "let's celebrate and explore multiplicity, and imagine the fantastic worlds we might create together."

The hope-against-hope goal, thus, of Economics and Management should, after all, be to bring about "life

is fair" perception in the majority of the people in the world suffering from the discontents of capitalism (unemployment, meaningless work, alienation, inequality, poverty, social divisiveness, corruption, environmental damage, modern slavery, etc.).

If Economics and Management do not promote critical thinking and lead to a good society that brings wellbeing to all its members, what is the point? At least, the ideas of progressive capitalism that Stiglitz (2019) and Deaton (2024) have conveyed, should permeate the syllabus and readings for undergrad students.

One major reason as to why curriculum reform does not take place is the non-clarity and consensus about what kind of society we want and how to operationalise it (Marmot, 2015). The ideological spectrum is too diverse and internecine to positively grapple with this problem. Nonetheless, there are attempts to resolve this problem by moral and political philosophy like Gilabert (2023) has done or by anthropological investigations of what people really do and think like Hart et al. (2010) have done. Such attempts help in humankind's search for 'common good' agreeable to everyone (Jaede, 2017), which is indeed the most difficult challenge to take on.

Be that as it may, should we offer students and persist with only unrealistic and status quoist readings? And should we say to disgruntled students, shut up and study the same?

Or, should we heed and follow, for example, the Re-thinking Economics (including Rethinking Accountancy) international movement "calling for socioeconomic and environmentally responsive pedagogies and epistemologies that will give rise to critical professionals" who can address "the world's current and future challenges of socioeconomic inequality and climate injustice and foster sustainable futures"?

Such rethinking—multiplicity thinking, systems thinking, critical realist thinking—alternatives (e.g. Ambler et al., 2022; Boje, 2024; Alvesson et al., 2009)) augur well to take care of the intrinsic as also instrumental aims of economics and management education.

To put it differently, how economics and management education can be "diversified, decolonised and democratised" (the 3D Pedagogy Framework) is the utmost botheration of these alternative investigations, which are already pursued in heterodox economics studies, and critical management studies programmes (a la Alvesson et al., 2009) in some colleges and universities in America and Europe. This should hopefully have a favourable demonstration effect for curriculum change in corresponding Indian educational institutions.

The 3D inclusive movement, which is, for example, gathering acceptance momentum in the UK universities, needs to become universal with its goals of "going beyond Eurocentric/Western modes of thinking and including different ways of constructing and sharing knowledge; empowering students as contributors to their education and the ways in which they and their peers are taught; and considering diverse cultural/regional perspectives in course content and teaching and learning preferences" (Gabriel, 2019; Aldridge, 2000). This could very well facilitate the possibilities towards formulating and executing context-specific concrete socio-economic policies for inclusive as also sustainable/regenerative development instead of top-down, one-size-fits-all-approach to human and planetary dystopia.

Empirical cognitions of these reformative experiments need to be taken stock in effecting economics and management curriculum reform much before student discontents and protests might explosively force open it in the Indian context. Moreover, whether educational transformation on the above lines can be omnipotent, is predicated on the undisturbed precondition that universities or higher educational institutions do have the autonomy to engage in the search for truth and expansion of human knowledge by fostering critical and creative thinking for the benefit of society at large (Lyer et al., 2023). Also required are "new coalitions of mainstream and heterodox educators to rethink undergraduate economics through the lens of liberal education" (Garnett and Reardon, 2011).

Undergraduate curriculum change on pluralistic lines can be seen somewhat in India in new and small private universities such as the Azim Premji University but it is absent in large and old public universities such as the University of Delhi. How in the latter case, intrinsic as also instrumental curriculum reform can be done in order to avoid the conveyor-belt system of imparting education based on only a single dominating school of thought, is a worthwhile and pragmatic research to be done.

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Unemployment and Employment Exchanges in Kerala: An Economic Analysis

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Abstract

All nations worldwide grapple with the socioeconomic challenge of unemployment. Kerala, an Indian state, stands out for its distinctive social development characteristics. The Periodic Labour Force Survey, conducted by the Ministry of Statistics and Program Implementation, revealed that Kerala has the highest unemployment rate in India for the 15-29 age group at 28.7%, significantly exceeding the national average of 10% in 2024. The survey also indicated that over the past three years, from July to June, Kerala ranked 23rd among 28 states with a Worker Population Ratio of 50.50% in 2022-2023. In Kerala, female unemployment surpasses that of males, with education being a key factor in the state's unemployment landscape. Employment Exchanges were established to bridge the gap between job seekers and employers. These institutions aim to assist individuals in finding paid employment or self-employment opportunities, while also offering vocational and educational guidance. Additionally, they facilitate financial support for self-employment initiatives. However, the functions of Employment Exchanges have proven inadequate in addressing the state's unemployment issues. A critical analysis has to be conducted on how Employment Exchanges contribute to addressing unemployment issues.

Keywords:

Educated unemployment, employment exchange, self-employment, Kerala

JEL Code:
J21, J64

INTRODUCTION

The southwestern state of Kerala in India presents a unique socio-economic landscape, characterized by weak production sectors coupled with remarkable progress in social development, especially in the realms of education and healthcare. The global challenge of labour force imbalance, where some regions experience an oversupply of workers while others face shortages, is mirrored in India's national unemployment predicament. According to the Annual Periodic Labour Force Survey (PLFS) 2024, the estimated unemployment rate for individuals 15 years and older in India stood at 3.2% during 2022-2023 (Periodic Labour Force Survey (PLFS), 2019-2023). Kerala, however, grapples with unemployment rates exceeding the national average. The 2023-2024 PLFS reveals that unemployment among the 15-29 age group in Kerala reaches 29.9%, surpassing the national figure of 16.8%. Kerala's unemployment landscape is distinctly marked by high rates

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among educated individuals and women. Within the 15-29 age bracket, female unemployment soars to 47.1%, while male unemployment stands at 19.3%. The situation is particularly dire for educated individuals who find themselves unable to leverage their acquired knowledge and skills to drive societal progress and development.

Employment Exchanges were established to assist individuals in finding gainful employment, whether through paid positions or self-employment, and to offer vocational and educational guidance along with other services to maximize stakeholder satisfaction. These exchanges serve as an interface between various stakeholders, facilitating responsive, transparent, and efficient employment services to address the skill requirements of a dynamic society (Employment – Kerala, 2020). They recommend candidates with appropriate qualifications, experience, and skill sets for various positions in the shortest time possible. While paid employment remains a focus, there is now an increased emphasis on self-employment initiatives to align with changes in the job market. Employment Exchanges maintain an up-to-date register of job seekers in the state, including their educational qualifications. They implement various strategies such as placement services, employability centres, guidance for further education, coaching programs for competitive exams, unemployment assistance, and self-employment schemes. These exchanges act as a connecting point for job seekers, employers, students, entrepreneurs, and government departments. The current study examines the functions of Employment Exchanges in Kerala, their importance in addressing unemployment, and proposes measures to enhance their operational efficiency.

STATEMENT OF THE PROBLEM

Kerala faces a significant economic challenge in the form of unemployment. The issue of joblessness among educated youth requires immediate attention. To assist job seekers, Employment Exchanges were established, offering various services such as direct wage employment, self-employment initiatives, and facilitating connections between job seekers and employers.

IMPORTANCE OF THE STUDY

Given that unemployment is a major concern in Kerala, both state and central governments are working to create more job opportunities. The unemployment rate in Kerala consistently exceeds the national average. Employment Exchanges have been operating in the state for over seven decades. Consequently, it is essential to examine the various functions of these Employment Exchanges to address the unemployment problem effectively.

DATA AND METHODOLOGY

Secondary data formed the foundation of this study. The researchers obtained essential information from a variety of official documents, including National Sample Survey Organization (NSSO) publications, multi-year census reports, Employment Exchange live registers, Labour and Employment Survey results, and yearly Economic Reviews produced by the Kerala Government's Planning Board. The methodology of this study is descriptive.

OBJECTIVE OF THE STUDY

1. To understand unemployment problem in Kerala.
2. To analyse the role of employment exchanges in solving unemployment problem in Kerala.

LITERATURE REVIEW

Historically, Kerala has been experiencing high rates of unemployment as compared to other Indian states. Mathew (1997) investigated into job preferences of Kerala youths and concluded that government jobs are more preferable than self-employment and resulted in emergence of Arts and Science colleges in Kerala. Kannan (1998) and Eapen (2001) found that despite economic growth, Kerala experienced unemployment in the forms of structural, educated, and disguised unemployment. The study conducted by the Kerala State Planning Board (2020) found that Kerala faced increasing youth unemployment, particularly among women. Prakash (2004) observed a coexistence of high literacy rate and high unemployment rate in Kerala. This study attributed this paradox to a skills mismatch and an overemphasis on formal education. The National Education Policy 2020 (NEP 2020) attempts to address this mismatch between the needs of the employers and supply of suitable educated labour force. Prakash (2017) conducted a study into the causes and nature of unemployment in Kerala. He viewed that mobility of labour to private both organised and unorganised sector is low in Kerala. Industrial backwardness and agriculture stagnation are prevailing in the state which resulted in low employment

opportunities.

Employment Exchanges were established as the facilitators and intervention maker in the labour markets. Like other states of India, Kerala also established a strong network of Employment Exchanges. But, they could not function as expected. George (2010) and Nair (2015) highlighted that the Employment Exchanges could not perform their work to match the employers' needs and supply of suitable labour force. Further, they noted that jobseekers shifted towards private sector recruiters. For filling up this gap between the need of the industry and skill availability, Pillai (2019) advocated for enhanced vocational training and stronger industry-academia linkages to improve employment prospects. Thomas (2021) suggested that the policymakers need to emphasize on to strengthen self-employment opportunities, entrepreneurship programs, promotion to startups and MSMEs as a viable alternative to traditional employment avenues. Further, many scholars argue that Employment Exchanges may be integrated with private job portals so as to enhance their effectiveness.

UNEMPLOYMENT IN KERALA

Worker Population Ratio (WPR)

The Worker Population Ratio (WPR) serves as a crucial metric for evaluating labour market conditions and ascertaining the percentage of individuals effectively engaged in the manufacturing of economic goods and services. It represents the percentage of employed individuals within the population This ratio provides valuable insights into labour market dynamics and overall economic health. A higher WPR generally indicates a more robust economy with greater labour force participation, while a lower ratio may suggest economic challenges or demographic shifts. The WPR can be calculated for different demographic groups, allowing policymakers and economists to identify trends and disparities in employment across various segments of society.

Table 1: Worker Population Ratio Based on Usual Status (2017-18 to 2022-23)

Year	Kerala	India
2017-18	32.4	34.7
2018-19	35.3	35.3
2019-20	36.5	38.2
2020-21	37.6	39.8
2021-22	39.7	39.6
2022-23	41.2	41.1

Source: Periodic Labour Force Survey (PLFS), (2017-2023).

The above table demonstrates that both India and Kerala have shown improvements in their WPR from 2017-18 to 2022-23. The rural areas experienced unemployment rates of 4.7% for males and 15.6% for females, while urban areas saw rates of 5.2% for males and 18.80% for females (Economic Review, 2020). For individuals aged 15 and above, the Current Weekly Status (CWS) unemployment rate was 8.7% in India, with Kerala reporting a higher rate of 11.8%. In urban areas, the unemployment rate was 8.0% for males and 19.0% for females, whereas in rural areas, it stood at 7.9% for males and 20.9% for females. The subsequent table provides detailed information on unemployment in Kerala, encompassing both Usual Status and Weekly Status.

Table 2: Unemployment Rate in Kerala, % Both Usual Status (PS+SS) and CWS

	Rural			Urban			Rural + Urban		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
Usual Status	4.7	15.6	8.4	5.2	18.8	9.7	4.9	17.0	9.0
CWS	8.0	19.0	11.6	7.9	20.9	12.1	8.0	19.8	11.8

Source: Periodic Labour Force Survey (PLFS), (2019). Note: PS (Principal Status), SS (Subsidiary Status) and CWS (Currently Weekly Status).

The data in the table indicates that female unemployment is a significant issue in both rural and urban areas of Kerala. Nevertheless, the female Labour Force Participation Rate (LFPR) in Kerala stands at 35.2%, surpassing the national average of 23.5% for India (Economic Review, 2020).

Unemployment Rate (UR) of the Youth in Kerala

Individuals between 15 and 29 years old are classified as youth. Their involvement in productive employment is crucial for economic growth. In Kerala, youth make up approximately 23% of the state's population, though their numbers have decreased significantly in recent years. Youth unemployment rates in Kerala are 35.80% in rural areas and 34.6% in urban areas. Additionally, unemployment among young women is considerably higher than among young men. Regional analysis reveals that 57.8% of rural females are unemployed, compared to 23.4% of rural males. The following table provides a comparison of youth unemployment rates between Kerala and India.

Table 3: Percentage of Jobless Individuals Aged 15-29 in Kerala and India Based on Usual Status

	Rural			Urban			Rural + Urban		
	Male	**Female**	**Person**	**Male**	**Female**	**Person**	**Male**	**Female**	**Person**
Kerala	-	57.8	35.8	23.1	53.1	34.6	23.3	55.4	35.2
India	-	13.8	16	18.7	25.7	20.2	17.2	17.7	17.3

Source: Periodic Labour Force Survey (2019)

The table shows that youth unemployment in Kerala is higher than national level. Lack of adequate skill, conventional educational system and attitude of youths are the main reasons for unemployment among youths in Kerala. According to the Annual Report of PLFS 2022-23, Government of India, unemployment according to usual status for persons of age 15 years and above for India was 3.2% while it was 7% for Kerala (Periodic Labour Force Survey (PLFS), 2019-2023).

EMPLOYMENT EXCHANGES IN KERALA

In the aftermath of World War II, India established the Employment Service to manage the reintegration of its labour force. The Directorate General of Resettlement and Employment (GGRE) was inaugurated in July 1945, followed by the gradual establishment of Employment Exchanges across the nation to ensure uniformity and coordinate efforts. These exchanges played a crucial role in resettling the substantial number of workers displaced by India's 1947 partition. Responding to public demand, Employment Exchanges expanded their services to all applicant categories by early 1948, evolving from a resettlement agency into a comprehensive national placement service. The Employment Exchange, an initiative of the Kerala Government's Labour Department, aims to eliminate the disconnect between employers and job seekers.

Operating under the state's Ministry of Labour and Rehabilitation, the Employment Department primarily focuses on creating employment opportunities. Its online portal provides a wealth of information, including vacancy notifications, self-employment schemes, placements, survey programs, and guidelines. Kerala's employment services network comprises 14 district Employment Exchanges, 60 Town Employment Exchanges, 3 Professional & Executive Employment Exchanges, and 6 Special Employment Exchanges for physically challenged applicants. Additionally, the department runs two Coaching-cum-Guidance centres for SC/ST candidates, 7 University Employment Information & Guidance Bureaus, and 6 Employment Information Assistance Bureaus (FAQ – Employment, 2025). The Employment Exchange service is now a collaborative effort between Central and State Governments, with the latter maintaining administrative control. To ensure consistency in operations nationwide, the Director General of Employment & Training in New Delhi establishes policies and procedures at the national level, with the department known as the National Employment Service (Kerala). While not guaranteeing job placement, Employment Exchanges are tasked with facilitating connections between job seekers and employers. They offer various employment assistance services, including applicant registration, vacancy collection, candidate

submissions for notified positions, campus recruitment, information dissemination, and vocational and counselling guidance.

Registered Job Seekers in Employment Exchanges

The live register of Kerala's Employment Exchange indicated that total job seekers were 43.3 lakh as of December 31, 2012. This number saw a decline, reaching 34.3 lakh by July 31, 2020, representing a decrease of around 9.0 lakh. Subsequently, the count of job seekers further diminished to 2455453 by September 1, 2024. A table is included that presents the job seeker data for different years (Economic Review, 2020).

Table 4: Total Work Seekers in Kerala (2005 to 2020)

Year	General Work Seekers			Professional Work Seekers			Total Work Seekers	
	Male	Female	Total	Male	Female	Total	Male	Female
1	2	3	4	5	6	7	8	9
2005	1497787	1818067	3315854	110458	66464	176922	1608245	1884531
2010	1640686	2368717	4009403	100541	49930	150471	1741227	2418647
2011	1733795	2299384	4033179	110824	53705	164529	1844619	2353089
2012	1736125	2423307	4159432	111061	58910	169971	1847186	2482217
2013	1374122	2149086	3523202	107651	98267	205918	1481773	2247353
2014	1384506	2081103	3465609	97087	57984	155071	1481593	2139087
2015	1326296	2004785	3331081	108023	54718	162741	1434319	2059503
2016	1203248	2109306	3312554	137456	109388	246844	1340704	2218694
2017	1159247	2070841	3230088	134452	138225	272677	1293699	2209066
2018	1156734	2110661	3267395	140778	152923	293701	1297512	2263584
2019	1126070	2075362	3201432	152413	167940	320353	1278483	2243302
2020	1089593	1990500	3080093	160795	190277	351072	1250388	2180777
2021	1299955	2443120	3743075	116178	173835	290013	1416133	2616955
2022	937704	1666803	2604507	96826	139171	235997	1034530	1805974
2023	928710	1680656	2609366	106024	148080	254104	1034734	1828736

Source: Directorate of Employment Statistics, Kerala (2023).

In Kerala, female job seekers dominate the live registers, accounting for 63.86% of all applicants in 2023. A breakdown of job seekers based on their educational background shows that a mere 7.9% have credentials lower than SSLC. The overwhelming majority (92.1%) have achieved SSLC or higher levels of education. As of July 31, 2023, there are 254,104 individuals seeking skilled and technological positions. Graduates and postgraduates comprise 10 and 3% of job seekers, respectively (Economic Review, 2020). A table detailing the educational breakdown of work seekers in Kerala is provided below.

Table 5: Distribution of Work-seekers based on Literacy in Kerala

Year	Illiterate	Below SSLC	SSLC	HSE	Degree	PG	Total
2013	217	434420	2377632	638437	224477	53943	3729126
2014	I94	398327	2225371	710873	230045	55870	3620680
2015	905	399647	2182445	618690	233768	58467	3493822
2016	1191	368605	2150360	713987	272198	53057	3559398
2017	791	349750	2034869	757196	299345	60814	3502765
2018	800	321058	1980953	842275	332905	83107	3561096
2019	732	284600	1939978	872865	330341	93273	3521785
2020	880	299480	1810753	906557	335840	107655	3431165
2021	1860	246930	1612107	1377799	447567	146825	3833088
2022	1569	282995	1198857	891539	352422	113122	2840504
2023	1580	183189	1241738	922590	385551	128822	2863470

Source: Directorate of Employment Statistics, Kerala (2023).

There is existing unemployment among professional and technical graduates in Kerala which is evident from the number of registered professional job seekers in Employment Exchanges. The number of registered medical graduates was 9000 as on July 2020. Unemployment among engineering graduates are very high which is more than 47000. Following table explains details of professional and technical work seekers in Kerala.

Table 6: Number of Professional and Technical Work Seekers

Year	Medical Graduates	Engineering Graduates	Diploma Holders	ITI Certificate	Agricultural Graduates	Vetenary Graduates
2005	3428	6389	41345	124410	803	547
2010	2090	8143	35164	104261	402	411
2011	2439	10953	37748	111751	491	517
2012	2912	14477	38841	112493	529	719
2013	2945	40091	38010	85590	500	583
2014	3241	26082	38603	85696	759	690
2015	3497	23984	46061	87727	915	587
2016	3369	30719	51080	88682	1182	609
2017	4185	40436	52421	92003	1572	305
2018	6710	42772	60162	93833	1309	486
2019	8753	45913	79731	96446	1344	498
2020	9000	47525	99459	102345	1397	554

Source: Directorate of Employment Statistics, Kerala (2020).

The table reveals the fact there exist severe unemployment among professional graduates such as medical graduates, engineering graduates and Diploma holders.

SERVICES PROVIDED BY EMPLOYMENT EXCHANGES

Placement Services

In Kerala, the Kerala Public Service Commission (KPSC) oversees the filling of temporary positions in state government, quasi-state government, and local body sectors through Employment Exchanges. These exchanges also handle permanent recruitment for vacancies not under KPSC jurisdiction across all government sectors. Additionally, they fill both temporary and permanent positions in central government and quasi-central government sectors (FAQ – Employment, 2025).

Since 2010, there has been a downward trend in overall placements through Employment Exchanges in Kerala. Various Kerala government departments have begun appointing employees on a daily wage basis for temporary vacancies, bypassing the Employment Exchange system (Economic Review, 2020). The following table illustrates the year-by-year placement figures through Employment Exchanges in Kerala.

Table 7: Placement through Employment Exchange – Kerala

Year	Number of Registered Job seekers	Placement through Employment Exchanges	Percentage of Placement
2013	3729126	8841	0.24
2014	3620680	8792	0.24
2015	3493822	10303	0.29
2016	3559398	10212	0.29
2017	3502765	11647	0.33
2018	3561096	12887	0.36
2019	3521785	12027	0.34
2020	3431165	9366	0.27
2021	3833088	10705	0.28
2022	2840504	14432	0.51

Source: Economic Review (2020), Government of Kerala.

The table explores the fact that placement service of Employment Exchanges is very short compared to the number of registered job seekers. The placement service was below one% from 2013 to 2022.

Career Development Centre

The National Employment Service Department of Kerala's Government launched a flagship initiative in 2012 called 'Employability Centre,' which aims to transform Employment Exchanges into Skill and Employability hubs. The project's primary goal is to enhance the skills of educated and talented youth to meet international standards, making them globally employable. It seeks to create more lucrative and productive job opportunities in the private sector. Currently, the Department has established 10 Employability Centres across various districts in Kerala.

Model Career Centre

The Employment Department has also introduced Career Development Centre, a new program designed to promote career advancement activities in rural areas. These centres aim to assist rural students in gaining knowledge and training on the latest trends and developments in education and employment. The Career Development Centres offer both vocational and educational guidance, including resume preparation, pre-interview training, soft skill development, and free coaching for various competitive examinations. Five such centres have been established under the Employment Exchange in Kerala.

Niyukthi Mega Job Fair

The Niyati Mega Job Fair, an annual regional event organized by the National Employment Service Department, aims to enhance job prospects for

unemployed youth and provide employers with excellent candidate options. In 2020, the fair held in Kozhikode attracted 4,500 job seekers and 73 employers, resulting in 240 placements.

KPSC Facilitation Centre

The department's 14 district offices offer training on various Kerala Public Service Commission services, including One Time Registration, online examinations, and mock interviews (FAQ – Employment, 2025).

Career Jalakam

Additionally, Career Jalakam, an informative brochure detailing higher education courses and employment opportunities, is available digitally on the website.

Dhanush

Dhanush, a complimentary training program for undergraduates which prepares students for getting admission to different courses at higher education institutions, centres of excellence, and research facilities across India. Currently, the program focuses on specializations in English, Economics, Mathematics, Statistics, and Biological Sciences.

Unemployment Assistance

In 1982, a program to assist the unemployed was established. This initiative provided support to jobless young individuals who remained in the active unemployment register for more than three years after turning 18 and completing their SSLC. Eligible participants could receive aid until they reached 35 years of age. In 1998, the administration of this unemployment assistance program was transferred to local self-governing bodies in both rural and urban areas. The Kerala Economic Review 2023 reported that in 2022, RS 157.27 lakh was distributed as unemployment assistance to 21,985 recipients. Additionally, Rs 2454.25 lakh was allocated among 3,251 beneficiaries as part of a self-employment assistance program.

Self-Employment Schemes

Through its Employment Exchanges, Kerala has implemented three self-employment initiatives: KESRU (Kerala Self-Employment Scheme for the Registered Unemployed), MPSC/JC (Multi-Purpose Service Centres/Job Clubs), and Saranya. These programs aim to provide employment opportunities for the state's registered unemployed individuals.

a. Kerala Self-Employment scheme for the Registered (KESRU)

KESRU targets unemployed individuals aged 21 to 50 listed in live registers, with a family income cap of one lakh annually. The program offers a 20% subsidy, prioritizing applicants with ITI/ITC certificates, professional or technical qualifications, and graduate women. In 2019-20, the scheme was allocated Rs 130.5 lakh, with Rs 62.3 lakh utilized to benefit 322 individuals.

b. Multi-Purpose Service Centres / Job Clubs (MPS/JC)

MPSC/JC is a collective self-employment initiative aimed at fostering enterprises in the unorganized sector. It provides bank loans up to Rs 10 lakh, including a maximum subsidy of Rs 2 lakh, for launching group ventures comprising two to five unemployed members. Eligible participants must be registered in the live register and fall within the 21 to 45 age range. During the 2019-20 period, Rs 100 lakh was distributed among 62 clubs (MPSC/JC – Employment, 2025).

c. Kaivalya Scheme

The Kaivalya scheme, initiated in 2016, serves as an Employment Rehabilitation Program aimed at facilitating self-employment opportunities for persons with disabilities. This comprehensive initiative comprises four essential components: occupational and career counseling, skills enhancement, tutoring for competitive examinations, and financing without interest to support entrepreneurial endeavours (KAIVALYA – Employment, 2016).

CONCLUSION

Unemployment is a critical concern for humanity, representing the denial of an individual's right to earn a living and improve their quality of life while also contributing to socioeconomic challenges. In Kerala, this issue is exacerbated by typical residents' reluctance to pursue private-sector employment due to wage instability and a strong inclination towards salaried positions over self-employment. The complex interplay between education and the job market has intensified the problem of educated unemployment in the state.

Kerala's unemployment rate exceeds the national average, with notable characteristics being higher among educated individuals and women. The prevalence of unemployment among educated youth calls into question the sustainability of Kerala's developmental model. Employment Exchanges offer various services, including job placements, financial aid, and subsidized loans, which help alleviate the hardships of unemployment. Career and educational guidance provided by these exchanges throughout the state assists job seekers in finding suitable employment.

However, the overall performance of these exchanges in addressing unemployment has been unsatisfactory. Many temporary positions are filled through other means rather than through Employment Exchanges. Additionally, the funding allocated to various schemes is insufficient. Enhancing the efficiency of Employment Exchanges requires appropriate interventions. To address Kerala's unemployment issue, more comprehensive strategies and initiatives are necessary. The scope of Employment Exchange activities should be broadened by promoting start-ups and self-employment programs. Consequently, the educational system should be adapted to support these efforts. Expanding Employment Exchanges can be achieved by collaborating with government departments to fill vacancies and hire employees for daily wages and temporary positions. The relevance of Employment Exchanges is called into question because of the large number of registered candidates who have not received any response or support for extended periods. Therefore, the government should prioritize improving employment exchange efficiency.

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FDI and Growth – Two Sides of the Same Coin? Evidence from India Over 50 Years

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Abstract

FDI is widely regarded as a significant contributor to growth and development of the recipient economy. India's FDI Policy stance, however, has witnessed various modifications over the last five decades which potentially creates 'structural breaks' in the effect of FDI on economic growth. We adopt a multi – dimensional approach and cover different aspects of macroeconomic growth. While the impact on the growth of GDP, Investment, Productivity and Value Added by Service Sector are found to be the strongest relatively; FDI inflows have had a subdued impact on the growth of GDP Per Capita, Employment, Manufacturing Value Added and Agriculture Value Added. Moreover, the di – rection of impact has been vastly different in 1974-1990 as compared to 1991-2019. The magnitude of impact further varies within these during sub-periods.

INTRODUCTION

This paper studies the 'evolution' of the impact of foreign direct investment (FDI) on economic growth of India from 1971 to 2019 – evolution because a dollar of FDI received in 1971 no longer has the same impact on growth in 2019; in addition, each dollar of FDI received takes several periods to have its full impact on different growth variables – hence, the impact evolves over several periods. FDI has been defined by the DPIIT, Ministry of Commerce and Trade, Govt. of India as 'investment through capital instruments by a person resident outside India in an unlisted Indian company; or in ten% or more of the post issue paid-up equity capital on a fully diluted basis of a listed Indian company'. It is widely regarded as a significant contributor to growth and development of the recipient economy.

But what does one mean by 'economic growth'? There can be several facets to this such as GDP growth, employment growth, productivity growth etc. We adopt a multi-dimensional approach and cover different aspects of macroeconomic growth of India by studying the impact of FDI inflows on the same over the period 1970 – 2019. India's FDI Policy stance has witnessed various modifications over these five decades which potentially creates structural breaks in the effect of FDI on growth. To incorporate both these things in a single framework, we employ the 'Least Squares with Breaks' method to study the evolution of the impact of FDI on growth of the Indian economy.

We find quite a lot of diversity in the effects across different variables representative of economic growth. While the impact on the growth of GDP, Investment,

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Productivity and Value Added by Service Sector has been the strongest relatively; FDI inflows have a subdued impact on the growth of GDP Per Capita, Employment, Manufacturing Value Added and Agriculture Value Added. Moreover, the direction of impact has been vastly different in 1974 – 1990 as compared to 1991-2019. The magnitude of impact further varies within these during sub-periods. All of this is significantly driven by the government policy changes. Hence, it is important to understand the evolution of FDI Pol – icy in India.

OVERVIEW OF FDI POLICY IN INDIA

India's policy with respect to foreign inflows has undergone several changes since independence which vastly varied in its impact on the economy. Even though foreign presence did exist even at the time of independence due to colonial history, initially, the Indian government followed a strict regime of planning and regulation, exercising significant control over industry, trade and foreign investment. Certain attempts at liberalisation were made occasionally until 1970 but mostly due to the pressures from BoP crises. Since the objectives of these policies were focused on just controlling the economic crises at the moment, they remained narrow in their scope and failed to have any significant impact on foreign inflows. The government strongly advocated 'self-reliance' and the policy of import substitution and kept tariffs high and also exercised a lot of control on critical inputs like cement. There was a lot of hesitancy in 'opening up' due to insecurity with respect to sovereignty which increased in the 1970s and led to a series of policy decisions aimed at restricting foreign presence in Indian commerce; for example, foreign shareholdings in Indian companies were restricted to an upper cap of 40% which led to the closure of some of the existing foreign ventures too such as Coca Cola.

FDI inflows improved in terms of quantity and pace in India in the 1980s – referred to as a 'phase of semi-liberalization' – with the onset of liberalisation policies of the government, and FDI Inflows more than tripled during these 10 years despite showing considerable volatility. However, the policies to encourage FDI were weak – both in number and (sustainable) impact – during the first half of the decade. The domestic firms were also inefficient, in general. But 1985-88 witnessed significant policy changes with respect to FDI which altered its effect on the Indian economy and the subsequent 3-4 years witnessed a major jump in the GDP growth rate to about 7.6%, and these policies laid the foundation for the 1991 reforms too. Some of the major policies/policy changes introduced during this period were as follows:

(i) Decline in Share of Canalized Imports

(ii) Expansion of the OGL List

(iii) Relaxation of Industrial Controls and associated Reforms

(iv) Realistic Exchange Rate

(v) Introduction of Export Incentives and REP Licences

However, high import tariffs and associated controls continued to persist in the 1980s; there were certain export controls in place too in order to ensure domestic price stability and availability of products. The financial sector was not well developed. Reservation of sectors for small-scale industries also continued to prevail since independence. Yet, FDI inflows did witness positive impact due to these policies taken in 1985-88, recording a 23% annual growth; however, the share of FDI in investment remained very low.

The policies of the 1980s, in general, such as boosting growth on the back of just fiscal expansion and debt turned out to be unsustainable and culminated in the well-known crises of 1991. 1991 marked a landmark change in the stance of the Indian government with respect to foreign inflows and trade. Some of the major policy changes taken over the 1990s which impacted FDI inflows were as follows:

(i) Introduction of the 'automatic approval route' under the purview of the RBI

(ii) End of the 'License Raj' which awarded firms considerable flexibility with respect to investment and expansion decisions as well as exit

(iii) Reductions in restrictions on foreign collaborations, technology transfers and royalty payments

(iv) Drastic reductions in import tariffs and quotas in a series of measures

These reforms were able to give a huge boost to FDI flows which grew by more than 40% p.a., on average, until 1997, thereby reaching a value more than 30 times the value in 1991. However, FDI as a share of gross domestic

investment at 3%, even though about 12 times its value in 1990 still continued to remain quite low in comparison to other developing economies. The sudden opening of the economy at a large scale did give a significant boost to FDI, but the inflows declined over the next 2-3 years, partly due to the East Asian Financial crisis, but then picked up an upward trajectory again.

While de-reservation of small-scale industries, relaxation of government controls and further opening-up of economy continued in the early 2000s, the next major change in FDI policy came in 2005-06 with the new FDI policy which not only quadrupled the FDI inflows in a single year but also raised FDI's share in gross domestic investment and GDP by 3-4 times. However, these changes were not sustainable in their impact, and coupled with the global recession of 2008-09, the upward trend didn't even last for 3 years.

Significant and sustainable policy changes towards attracting FDI began from 2012 and continue till date. The government opened the major multi – brand retailing segment for FDI with the limit of 51% and allowed 100% FDI in single-brand retailing in 2012.

In 2013, India was ranked as the 15th destination for FDI; it jumped to the 9th spot in 2014. In 2015, India overtook China and USA as the top destination for FDI in the world, as per the Financial Times. By 2019, India became the 9th largest recipient of FDI inflows in the world. Some of the major policy initiatives after 2014 which contributed to this feat are as follows:

1. Make-in-India initiative which is believed to have increased FDI by 48% within a year of its launch since it liberalised FDI under 25 sectors.
2. 100% FDI permitted in Coal Mining, Railways (construction and maintenance), Insurance Intermediation, Civil Aviation, Broadcasting, Medical Device Manufacturing; moreover, this has been permitted under the 'automatic approval route'.
3. FDI in Defence Sector raised from 26% to 74% and that too under the 'automatic approval route'.

Following these policy measures, FDI inflows in India crossed the $500 billion mark in 2019-20 for the first time with FDI Inflows almost doubling from 2013. A more important and crucial point, however, is the remarkable change in FDI as a share of gross domestic investment. This has also increased by 75% from 2012, and now achieved stable growth above the 5% mark and continues to grow upward, standing at 6.26% in 2019-20.

LITERATURE REVIEW

A number of studies have looked at the impact of FDI on various economic indicators such as GDP growth, employment and trade; both at the national and international level. We look at a few of such papers that look at the said relationship in the Indian context. Sharma (2000) attempts to assess the impact of FDI flows on India's export performance which in turn contributes to economic growth, using yearly data for the period 1970-98. Using a simultaneous equation model to present India's export performance and a two stage least squares regression, they obtain a positive coefficient for FDI. However, the relationship comes out to be insignificant even at 10%; possibly due to an inward oriented policy which India did pursue for a long period of time, which may have discouraged export-oriented FDI. Banga (2005) looks at the impact of liberalisation on wages and employment in the Indian manufacturing sector using panel data with 78 industries at the three-digit level of industrial classification for 6 years. Using a dynamic panel data model estimated by Generalised Methods of moments, they obtain a positive and significant relation between FDI and wages irrespective of labour productivity, implying that foreign firms pay more. However, they do not find any significant impact of FDI on employment.

Borensztein et al. (1998) investigated the influence of FDI in the technology trans – fer and economic growth in developing economies. Their findings indicated that foreign direct investment (FDI) is an essential channel for knowledge transfer, driving towards development in a bigger way than local investment and has a positive impact on economic growth, nevertheless the amount of this impact is dependent on the host economy's human capital supply. Furthermore, they conduct an analysis on the effect of FDI on domestic investment and find a 'crowding-in effect'. Additionally, a number of studies have been conducted using a cointegration method. Chakraborty and Basu (2002) observe the relationship between FDI and growth in India. They have used a cointegration approach with vector error correction

model to study short run and long relationship between FDI and growth for India. Using data from 1974 to 1996 they observe that trade liberalization in India had some positive short run impact on FDI flow. Additionally, they also obtain results suggesting that FDI in India is labour displacing. A similar study has been done by Ray (2012); wherein they look at the relation – ship between FDI and economic growth in India, and using the cointegration method, observe the effect of FDI inflows on GDP growth. Using data for 11 years, they confirm a long run relation between FDI and growth. Another study by Jayachandran and Seilan (2010) looks at the relationship between foreign direct investment, economic growth and trade using data for 37 years; concluding that FDI and exports are one of the factors that affect India's economic growth.

DATA AND METHODOLOGY

In our paper, we aim to observe the impact of FDI on various macroeconomic indicators. However, we also need to take into account FDI policy changes over our sample period which would have had an effect on the structure of FDI inflows. However, in most standard regression models, parameters of the model are inherently assumed to be constant; which we believe is not the case in our scenario. Therefore, we use a Least Squares with Breakpoints model that does take into account structural breaks that may have affected the relation between FDI and other indicators. This is one major manner in which our methodology differentiates our research from those done in the past, which have generally used cointegration methods to obtain the relationship between FDI and growth, but have been unable to look at the impact of policy changes over the same period. By using the Johansen Cointegration test, we also observe the presence of a stable and long-term relationship FDI and economic growth.

The basic specification of the Least Squares Regression with Breakpoints is as follows:

$$Y_t = \alpha + \sum_{i=1}^{n} \beta_i X_{it} + \sum_{t=1}^{T} \sum_{p=1}^{q} \delta_{pt} Z_{it} + \mu_t \quad (1)$$

Where,

Y is the dependent variable

X_i are the non-varying variable, i.e. variables whose parameters do not vary across the time period

Z_i are variables, interacted with the dummy variables for the regimes, whose coefficients are regime specific and change due to structural breaks

We use Multiple Breakpoint Tests in order to obtain the different regimes in our time period, that are in coherence with India's economic history. Thus, the different regimes obtained are: Period 1 [1974-1985], Period 2 [1986-1990], Period 3 [1991-2011] and Period 4 [1912-2019]. Therefore, our dynamic regressors, which have been mentioned in the next section, enter the regression models interacted with 4 dummy variables for each of the periods.

As far as data is concerned, our research utilises data from World Bank Data and United Nations Conference for Trade and Development, the details of which are given below. Our dependent variables are as follows:

(i) Gross Domestic Product (GDP)

(ii) Gross Domestic Product per capita (GDP PC)

(iii) Domestic Investment (INV)

(iv) Total Value Added by Service (TVA S)

(v) Total Value Added by Industry (TVA IND)

(vi) Total Value Added by Agriculture (TVA AG)

(vii) Employment (EMP)

(viii) Total Factor Productivity (TFP)

Dynamic Regressor: FDI and its lagged values. In all of our regressions models, we include up to 4 lags of FDI.

Control Variables: Human Capital Formation (HCF), Real Interest Rate (RINT), Growth Rate of Total Factor Productivity (TFP GR), Employment Growth Rate (EMP GR), Investment Growth Rate (INV GR)

RESULTS AND DISCUSSION

The methodology described above has been applied to a variety of economic variables in order to show the different impacts of FDI on different aspects of economic growth; these variables form the dependent variable in the regression whose results have been presented and discussed below one-at-a-time. Econometric tests confirm that significant structural breaks in the relationship between economic growth and FDI lie in 1986, 1991 and 2012; consequently, the Least Squares Method with Breaks yields the coefficients for the 4 phases within the sample separately. We also include certain control

variables, wherever necessary. The regression results are presented in Tables 1 to 8.

Impact on GDP Growth

The impact in the first phase turns out to be negative with the effect being spread out over 5 periods. This happens because the FDI policies of India were not well developed during this period and the ones which existed were quite fragile and unsustainable – there were still a lot of controls present in the economy from the side of the government which did not allow proper channelling of these FDI resources; moreover, the foreign players were hesitant to bring in their advanced technology fully due to the lack of considerable stake permitted in the Indian companies. Since there was a craze for 'foreign' products in India at that time, many people diverted themselves to attempt to make use of these opportunities but it turned out to be unsuccessful in most cases because other economic policies did not support the comprehensive growth with foreign participation, thus, it ended up having a negative impact. A major reason for this was the reduction in investment growth and the prevailing inefficiencies. This period entailed significant licensing restrictions, so firms didn't have sufficient flexibility for appropriate use of the foreign resources, especially in the manufacturing sector. Import controls and tariffs did not allow them to use quality resources from abroad at cheap prices, so whatever investment and expenditure they made to expand couldn't take off into a successful trajectory and they lost on valuable money for further investment.

As highlighted earlier, India witnessed significant policy changes 1986 on – wards which turned the tide in a different direction. FDI did not have any statistically significant impact immediately but had adverse growth in the next period; this was largely due to similar reasons as those which persisted in the previous phase as well as canalization of imports, and also due to the fact that the policies were not sustainable in their impact. But the relaxation of industrial controls and export incentives allowed firms to channelize these resources properly, at least after some lag which positively contributed to growth as seen by the positive coefficient of the 4th lag of FDI; moreover, this outweighed the negative impact in the initial periods, to give an overall positive impact. How – ever, the policy picture and economic situation remained quite volatile during this period due to which FDI had a large negative and positive impact.

The 1991 reforms opened the doors to foreign participation at a huge scale. In addition, the de-licensing policy implemented at the same time created a cohesive favourable environment for FDI. Foreign firms brought in sophisticated technology through joint ventures in manufacturing and the service industry which gave an immediate boost to GDP growth. As time passed, firms which wanted to expand got the adequate financial, technological and legal re – sources to expand, which raised growth over the next few periods after the receipt of FDI; privatisation allowed foreign players to enter in new sectors too. Ancillary units were also set up over the next few periods which further contributed to growth. This can be seen by the positive coefficient on FDI (– 4); FDI (-1), FDI (-2), FDI (-3) are insignificant because it takes time for these decisions to show up their impact on growth (due to longer gestation periods etc.) after the momentary gain in the immediate period.

A somewhat similar path continued till 2011, i.e. the impact of a dollar of FDI received remained more-or-less the same. However, 2012 onwards, the Indian economy turned over a new leaf; the financial development and global image of India in terms of trade, commerce, ease-of-doing-business, domestic demand and entrepreneurial interest have drastically improved which has led to large-scale technological and financial collaborations – firms no longer hesitate to invest in India and share technology. India has emerged as a major exporter of sophisticated tech-oriented services too and it is also experiencing knowledge spillovers. Coupled with the rise in skilled labour force with technical knowledge, this has helped to channelize the FDI inflows well. This is indicated by positive magnitudes of FDI, FDI(-2) and FDI(-3) for this phase; moreover, not only are the individual magnitudes higher than even 1991-2011, the overall impact has also almost doubled and takes place at a faster pace rather than 4 periods later.

Impact on Investment Growth

Investment growth shows a similar pattern to GDP growth in its response to FDI over the 4 phases. In 1974-1985, FDI had a negative impact on investment growth spread out over 5 periods. Majority of the Indian firms

were characterised by inefficiencies at this time and faced strict controls with respect to imports and exports, and government approvals were required for almost everything. As a result of this, major decisions such as those of capex were not only irreversible but it was also virtually impossible for firms to recover and grow if the investment decision failed to provide success. Not only were government approvals required for installing a new plant or expanding capacity but also for exiting the industry. In such a case, firms were extremely hesitant with respect to investment; on the other hand, those firms which were efficient and profitable and could expand still couldn't do so beyond a certain level due to government restrictions. Foreign players were also not allowed to hold substantial stakes which hampered technology transfers. In such a situation, firms which attempted to harness FDI receipts were rarely successful due to lack of ability to channelize the inflows productively, and the large amounts went in vain which permanently hurt their position and they couldn't even invest further which they would have done normally. Some small firms exited due to fear of competition against firms with foreign backing. Only few were able to genuinely benefit but that was not sufficient to outweigh the adverse impact. As a result, investment growth fell in the periods following FDI. In addition, several sectors were reserved for small-scale industries which were thus unable to attract foreign players, so FDI may not have been directed towards the sec – tors where it could have contributed the most.

In the second phase, we observe that FDI has an insignificant impact in the current period, negative impact in the next period but a positive impact in the 3rd period (preceded and succeeded by insignificant impacts). Since the government had taken several steps towards liberalisation and fiscal expansion by this time, the initial negative impact was not existent in this period; however, bureaucratic controls were still largely prevalent so firms weren't able to direct the resources to productive use faster, and the high import tariffs and quotas prevented them from earning good profits so firms were reluctant to make in – vestment. However, once firms were able to survive and grow at a stable pace post the receipt of FDI, foreign firms may have got more confidence to share their technology and other resources; some of the required inputs which were earlier imported may have been begun to be produced domestically (an additional source of investment growth) – but since all these things take time, we see that this shows up in the positive coefficient in the 4th period following the FDI receipt which also outweighs the earlier negative impact. The coefficients have huge magnitudes because of the volatility prevalent and because opportunities had opened up suddenly.

The third phase from 1991-2011 shows that FDI no longer had a negative impact on investment growth. It led to an immediate rise in investment growth because suddenly a huge number of opportunities were opened up in the business domain and there were a large number of joint ventures. Those firms which were efficient prior to the reforms and wanted to expand but couldn't do so due to legal restrictions and lack of financial resources took advantage of this and immediately expanded which contributed positively to investment growth. Since a large number of sectors were opened up to the private sec – tor for the first time, it attracted new foreign players, and investment which was automatically in a positive growth trajectory, was further propelled by the FDI inflows. When foreign firms brought in technology, many of the processes required particular raw materials and the decline in import tariffs and quotas allowed the firms to access these, hence they could positively utilise and grow by investing more. Policy changes continued in the 2000s too with a huge removal of small-scale industries reservations which attracted more MNCs whose expertise lay in those sectors, and this raised the growth rate of investment. The impact is seen to be positive and significant not only in the immediate period but also in the next period as well as the 5th period following the FDI receipt inflow. This happens because the growth experienced by the firms in the first 2 periods, once found to be stable and sustainable, further encouraged them to expand capacity, enter new lines of production and possibly the export market as well, so investment growth wasn't affected for the 3rd and 4th periods but rose by a huge percentage in the 5th period; an additional reason for this was that foreign firms were now willing to bring in their best technology on board in India which contributed positively to productivity and since the effects of this usually show up after some periods, firms were willing to grow at a much faster pace through higher investment once they had realised they started experiencing the advantages of economies of scale.

The 4th phase from 2012 to 2019 shows that the positive impacts have not only magnified as seen by the drastic increase in the magnitude of the significant coefficients, thereby leading to a much higher overall positive impact of FDI, but the impacts have also become faster in the sense that firms are willing to undertake capital expenditure at a much larger scale within 3-4 periods of the receipt of the FDI inflows. This is driven by an increase in efficiency, improvements in technology and credit markets, fast-track government clearances, greater risk-taking ability of both Indian entrepreneurs and higher trust of foreign players in the Indian firms and economy in which they invest. A major reason behind the higher impact as compared to Phase 3 also lies in the fact that FDI as a share of GFCF has risen to above 6% now which shows that FDI receipts are not only boosting investment directly but also crowding-in domestic investment, thereby raising investment growth in a sustainable manner.

Impact on GDP Per Capita Growth

DP per capita growth presents a quite different picture from that of GDP and Investment growth rates. FDI failed to have any significant impact on GDP per capita growth during the first 2 phases, viz. 1974-85 and 1986-90. This was largely because the contribution of FDI to GDP growth, in general, was not much and, in fact, negative for a considerable amount of time. Moreover, those who benefited out of FDI were the large industrialists and businessmen, and the benefits didn't drive down to those in the middle and lower economic strata. Inequality and poverty were still highly persistent during this period. 1970-90 coincided with period where India witnessed its highest population growth rate – the population growth rate started increasing from 1970, remaining above 2.1% throughout until 1990, after which it started to decline. So whatever gains accrued in a lagged form in the 2nd Phase couldn't translate into significant per capita gains in the economy.

From 1991 to 2011, FDI only led to a gain in per capita GDP in the same period when the inflows were received but no effect in further periods – even the impact in the initial period had a small magnitude. This happened because the gains from the FDI deals mostly accrued to the higher class; many people, in fact, lost jobs due to the higher use of capital equipment and technology with the presence of foreign players. Also, FDI didn't contribute much to the agricultural sector where the bulk of the Indian population resided, so per capita gains were again faint but not non-existent since the manufacturing and service sectors did gain significantly.

The impact has, however, undergone a drastic change 2012 onwards – not only has the overall magnitude of the positive impact risen dramatically, it is also present over the medium run now, i.e. after 3-4 periods of the FDI infusion. There are several reasons behind this and we highlight a few of them. Employment has shifted towards the service sector at a greater pace and since the FDI receipts are the maximum for the service sector in India, the gains have been spread out better over the population, at least in certain regions. Better use and growth of SEZs has allowed regions which were earlier unexposed to FDI to reap its benefits which have been passed on to the people living there as well, at least to some extent. The increase in literacy and skilled labour force has allowed a larger number of people to participate directly in economic activities which receive FDI. In addition, the huge increase in the FDI percentage permitted via the automatic route has expanded the spread of FDI across sectors as a result of which more people have come under the processes where FDI is received. However, the gains are not as large as GDP growth because FDI, especially in firms focusing on exports, usually favours a capital-oriented and technology-oriented production process as a result of which some of the gains are taken abroad through legal loopholes or accrue to capital owners and industrialists in a larger proportion than the bulk of the people engaged in the production process. Yet, Indian firms have become more competitive in the international market which has motivated FDI in medium-scale firms as well.

Impact on Total Factor Productivity Growth

Prior to 1991, i.e. in the first 2 phases, FDI did not have any significant impact on productivity growth in the Indian economy. As discussed earlier, foreign firms and MNCs were reluctant to share their best technology practices with Indian firms due to fear of replication and a lack of substantial stake in the firms since the upper cap on permitted FDI was relatively quite low in most of the sectors. With inefficiencies in terms of both scale and input procurement prevalent in the Indian economy, only a limited number of industries open to large-scale

private firms, and over-burdened, poorly managed PSEs and lack of export orientation, the relatively miniscule FDI failed to improve productivity growth.

With a larger equity stake being permitted 1991 onwards, and a large number of joint ventures and collaborations, foreign firms brought in advanced technology into the country alongside financial resources to expand and take advantage of economies of scale. However, this impact was just an immediate one, i.e. there was just a short-run but no medium run impact on TFP growth because of lack of R&D investment which would raise productivity in further periods after the FDI inflow – it was like the inefficiencies persisting over decades were corrected over these 20 years but there wasn't sufficient effort to take a leap further; firms would just 'expand' using the FDI inflows but didn't focus on becoming more productive.

From 2012, the positive coefficients on FDI, FDI(-2) and FDI(-3) clearly portray that FDI now contributes much more positively to TFP growth; this is partly due to the rapid growth of the technology-oriented service industry in the international market, substantial R&D investment by foreign players entering with 100% FDI as well as domestic firms receiving FDI and those competing in the export market; increase in venture capital investments from foreign players in startups which propel R&D and productivity growth in even medium-scale firms.

Impact on Growth of Value-Added in the Service Sector

The growth of the value added in the service sector was adversely affected by the FDI inflows prior to 1986. From 1986 to 1990, it did not have any significant impact. This was primarily because this sector wasn't given much importance, in general, in the economy including the policy domain since the government's objective was more focused towards achieving self-sufficiency and self-reliance in the primary and manufacturing sectors.

The 1991 reforms gave a major boost to the tertiary sector which expanded at a rapid pace in the fields of banking, business process outsourcing, IT, consulting etc. India also emerged as a major global player for many of these services with the growth of firms such as TCS, Infosys and Wipro. The service sector grew rapidly 2001 onwards as FDI limits were raised and the financial, computer software and hardware, telecommunications, outsourcing, real estate services started attracting the maximum FDI.

The opening of the multi-brand retail segment with 51% cap in 2012 and single-brand retail with 100% permitted gave a major boost to FDI inflows in the service sector. Further, the development of technology parks, SEZs, growth of fin-tech and ed-tech firms, and opening of the automatic approval routes along with a rise in the permitted FDI limits to 100% in a wide domain of activities under the service sector and the rise of India as one of the most prominent global players led to highly positive and significant impacts of FDI inflows. Additionally, the service sector has shown the largest share of FDI in the form of 'greenfield investments' and 'mergers and acquisitions'.

Impact on Growth of Value Added in Industrial/ Manufacturing Sector

Following the government's policy to promote this sector and achieve self- reliance prior to the 1980s, FDI inflows shifted in favour of this sector dramatically in the 1980s and it accounted for about an 80% share by 1990. However, prior to 1985 the other policies and economic environment were not favourable to harness the positive effects. Manufacturing firms had to take permission to even expand a product line; labour laws were not favourable, there was a lot of inflexibility with respect to investment and productivity and efficiency were low. With the 1985-88 reforms, manufacturing did get a boost from the government and recorded its highest growth rate; consequently, FDI did have a positive impact but only after 3 periods of the inflow which was because it took time to channelize these resources productively and mostly firms which were able to survive with sufficiently high productivity were able to raise their value-added growth rate.

While the manufacturing sector was the one which initially reaped the maximum benefit from the 1991 reforms, obtaining the highest share of FDI until 1999 and the introduction of IPR, 1991 simultaneously, it wasn't able to harness the gains properly and the impact of FDI on industrial value-added growth was lower than that of the service sector as seen by the coefficients. Yet, over-all impact for 1991-2011 was positive – an immediate positive impact and a positive impact after 5 periods.

From 2012 onwards, despite the investment slowdown, FDI has contributed positively to the industrial sector with a higher magnitude than any of the previous phases. This has followed in the wake of the government's strong advocacy of the Make-in-India initiative, improvement in ease-of-doing-business, better global relations, introduction of single-window clearances and other such initiatives. Moreover, the impact is not just for the same period but also for 3 more periods. In addition, FDI in manufacturing sectors has developed significant reach in small cities, thus generating linkages with suburban and rural regions of India.

Impact on Growth of Value Added in Agricultural/Primary Sector

Agriculture has long remained a relatively neglected sector from the perspective of policy changes directed towards growth, and the impact of FDI in the Agri VA growth paints a picture along the same lines. Even though the primary sector received majority of the FDI inflow until 1970 (though the ab- solute amount was small) relative to manufacturing and services due to the presence of foreign companies in the tea plantation and petroleum industries even before independence, the share drastically dropped from 34% to 11% in 1970-1990 since the government undertook policies to reduce the dominance of foreign presence in these industries and promote manufacturing. Moreover, the agri sector was highly inefficient with lack of advanced technology and irrigation facilities. As a result, FDI did adversely affect Agri VA growth in the first phase. In the second phase, there was a mild positive contribution since agriculture in itself was growing very well during this period.

However, the 1991 reforms almost neglected agriculture as a result of which there wasn't much impact initially of FDI inflows. Agricultural reforms started to be introduced in the early 2000s - such as the introduction of National Commodity and Derivatives Exchange Limited in 2003 where agricultural commodities were listed and traded.

Several agri reforms post 2012 boosted the impact of FDI on agri value added growth, however it still remained lower than the other sectors. In 2014-15, 100% FDI was allowed under automatic route for storage and warehousing which positively impacted agriculture value added growth. National Agriculture market was introduced in 2016 which allowed pan-India electronic trading portal and network connecting the existing APMC Mandis and creating a unified market for agri produce.

Impact on Employment Growth

FDI inflows had a moderate, evenly spread out (over 5 periods) adverse im- pact on employment prior to 1986 primarily because during this period FDI shifted from the primary to the secondary sector in line with the government's policy of developing a self-reliant manufacturing sector; however, manufacturing suffered from lack of absorptive capacity, inefficiency and inflexibility to expand due to licensing controls. In addition, the majority of the labour force resided in agriculture which was unable to reap the benefits of FDI. Moreover, foreign firms focused on more capital-intensive production, so employment took a hit. From 1986-1990, the negative impact was much lower due to additional policy initiatives of the government and the substantial rise in manufacturing growth which was receiving the maximum FDI.

From 1991 to 2011, the impact turned around to be positive since de-licensing coupled with FDI inflows through technological collaborations and joint ventures in manufacturing in the 1990s gave a boost to employment since the industrial sector expanded as a whole; from 2000s while manufacturing's importance dwindled in FDI share, service sector which gained the top spot in FDI share, witnessed an employment share growing substantially. On the other hand, the de-reservation of the small-scale industries and opening them up to foreign players in the early 2000s may have had a negative impact on employment growth. Hence, the overall impact was small in magnitude.

The impact of FDI on employment growth, though remaining positive, has further reduced in 2012-19. This is largely due to the increasing 'automation' and foreign players' bias towards capital-intensive and tech-driven processes. For example, in the textile industry, in which India once employed a huge share of its labour force, the export-oriented firms have to rely mostly on capital- oriented production to comply with the rules and preferences of the foreign customers which hampers employment. Moreover, the growing prominence of the service sector and its increasing tilt towards automation prevents FDI from having a major impact on employment growth. FDI inflows usually take place in firms which

require a greater proportion of skilled labour force due to which the overall employment growth is not able to reap much benefit.

CONCLUSION

This paper looked at the impact of FDI policy changes in India over a period of 50 years using a Linear Regression Model with Structural Breaks. After a detailed review of literature regarding studies concerning the relationship between FDI and economic growth, we observed that most do not take into account the presence of different policy regimes in India. This could inadvertently lead to incorrect results since such relationships are closely tied to various policies by the government. We overcome this problem by using Structural Breaks in our model that helps to show how the impact of FDI on various macroeconomic indicators has changed over our time frame.

In our analysis, we observe a negative impact of FDI on GDP Growth prior to 1990. However, since then, the impact has been positive and has been increasing, especially since 2012. Moreover, the coefficients in the regression of Investment Growth follow the same trend as that for GDP Growth. Contrary to these, we do not have significant results on GDP per capita growth prior to 1990. Even after 1990, FDI only had a minor positive impact on the same.

Additionally, we also conduct analysis for the impact on the growth of value added by various sectors of the economy; wherein we observe the highest impact of FDI on total value added by the service sector, followed by industry and agriculture. We also look at the impact of FDI on employment growth. We observe a negative impact of FDI prior to 1991, which does turn positive after 1991; though with a smaller number of significant lags. Analysis of the impact of FDI total factor productivity shows an insignificant relation between the two prior to 1990, which turns significant later on.

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APPENDIX

Table 1: Effect of FDI on GDP Growth

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-0.7396	0.279622	-2.645	0.0148
FDI(-1)		-0.03173	0.341974	-0.09279	0.9269
FDI(-2)		-1.20834	0.416503	-2.90115	0.0083
FDI(-3)		0.145315	0.330889	0.439166	0.6648
FDI(-4)		-0.64492	0.211693	-3.04648	0.0059
Period 2:	**1986-1990**				
FDI		1.133888	1.001815	1.131834	0.2699
FDI(-1)		-1.2552	0.571921	-2.19471	0.039
FDI(-2)		-1.33709	0.934773	-1.43039	0.1667
FDI(-3)		1.539259	0.772961	1.991381	0.059
FDI(-4)		-0.79511	0.885767	-0.89765	0.3791
Period 3:	**1991-2011**				
FDI		0.072304	0.019689	3.672281	0.0013
FDI(-1)		0.025232	0.021303	1.184459	0.2489
FDI(-2)		-0.01604	0.023854	-0.67246	0.5083
FDI(-3)		0.030651	0.02124	1.443051	0.1631
FDI(-4)		0.114121	0.032599	3.500737	0.002
Period 4:	**2012-2019**				
FDI		0.141697	0.036923	3.837678	0.0009
FDI(-1)		-0.04875	0.060277	-0.8088	0.4273
FDI(-2)		0.101937	0.052761	1.932044	0.0663
FDI(-3)		0.103407	0.045894	2.253145	0.0346
FDI(-4)		-0.01465	0.025247	-0.5804	0.5675
		Control Variables / Non-Breaking Values			
Constant		13.00634	0.104268	124.7392	0.0000
TFP GR		3.218034	1.285793	2.502763	0.0202
INV GR		-0.12297	0.415964	-0.29563	0.7703
EMP GR		1.353087	3.656467	0.370053	0.7149
Dependent Variable		ln(GDP)			
Sample		1970-2019			
Method Prob (F-statistic)		Least Squares with Breaks 0.0000			
Adjusted R Squared		0.979833			

Source: Authors' estimates

Table 2: Effect of FDI on Investment Growth

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-1.30585	0.543014	-2.40482	0.026
FDI(-1)		-0.43811	0.547848	-0.7997	0.4333
FDI(-2)		-0.79463	0.443445	-1.79195	0.0883
FDI(-3)		-0.33135	0.361276	-0.91717	0.37
FDI(-4)		-0.56008	0.308459	-1.81574	0.0844
Period 2:	**1986-1990**				
FDI		1.006405	1.049672	0.958781	0.3491
FDI(-1)		-1.28136	0.660606	-1.93967	0.0667
FDI(-2)		-1.39841	1.009155	-1.38572	0.1811
FDI(-3)		2.192628	0.931355	2.354234	0.0289
FDI(-4)		-1.16615	1.05507	-1.10528	0.2822
Period 3:	**1991-2011**				
FDI		0.075417	0.019255	3.91668	0.0009
FDI(-1)		0.055454	0.024402	2.272496	0.0342
FDI(-2)		-0.02011	0.029347	-0.68508	0.5012
FDI(-3)		0.037224	0.025341	1.468949	0.1574
FDI(-4)		0.175422	0.036215	4.84396	0.0001
Period 4:	**2012-2019**				
FDI		0.163618	0.043342	3.775062	0.0012
FDI(-1)		-0.01274	0.062041	-0.20529	0.8394
FDI(-2)		0.111611	0.051991	2.146716	0.0443
FDI(-3)		0.088658	0.051869	1.709272	0.1029
FDI(-4)		0.022749	0.030534	0.745044	0.4649
		Control Variables / Non-Breaking Values			
Constant		11.3564	0.107666	105.4777	0.0000
RINT		0.008445	0.012616	0.669374	0.5109
Dependent Variable		ln(Investment)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.980801			

Source: Authors' calculation

Table 3: Effect of FDI on GDP Per Capita Growth

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		0.021684	0.093639	0.23157	0.8188
FDI(-1)		-0.13385	0.100103	-1.33709	0.1937
FDI(-2)		0.165149	0.103435	1.596641	0.1234
FDI(-3)		-0.0346	0.090195	-0.38357	0.7047
FDI(-4)		-0.0083	0.082447	-0.10062	0.9207
Period 2:	**1986-1990**				
FDI		-0.075	0.308807	-0.24288	0.8102
FDI(-1)		0.012387	0.20337	0.06091	0.9519
FDI(-2)		0.087822	0.299893	0.292844	0.7722
FDI(-3)		0.158946	0.280835	0.565976	0.5767
FDI(-4)		0.123734	0.311043	0.397803	0.6943
Period 3:	**1991-2011**				
FDI		0.014798	0.006449	2.294658	0.0308
FDI(-1)		0.008566	0.007632	1.122419	0.2728
FDI(-2)		0.002012	0.008333	0.241497	0.8112
FDI(-3)		0.011126	0.007632	1.457812	0.1579
FDI(-4)		0.019408	0.013107	1.48075	0.1517
Period 4:	**2012-2019**				
FDI		0.050158	0.015035	3.335984	0.0028
FDI(-1)		-0.01422	0.018663	-0.762	0.4535
FDI(-2)		0.038784	0.016225	2.390469	0.025
FDI(-3)		0.034901	0.016157	2.160097	0.041
FDI(-4)		-0.01517	0.008938	-1.6971	0.1026
Control Variables / Non-Breaking Values					
Constant		4.509821	0.209899	21.48572	0.0000
HCF		1.15634	0.138155	8.369844	0.0000
Dependent Variable		ln(GDP PC)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.994574			

Source: Authors' calculation

Table 4: Effect of FDI on Total Factor Productivity Growth

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-0.01374	0.068812	-0.19962	0.8434
FDI(-1)		-0.12351	0.07718	-1.60023	0.1221
FDI(-2)		0.117441	0.075947	1.546362	0.1346
FDI(-3)		-0.0482	0.068897	-0.69957	0.4907
FDI(-4)		-0.03999	0.0584	-0.68483	0.4998
Period 2:	**1986-1990**				
FDI		-0.09547	0.242285	-0.39403	0.6969
FDI(-1)		-0.08141	0.152823	-0.53269	0.599
FDI(-2)		0.033814	0.23317	0.145018	0.8859
FDI(-3)		0.201829	0.211928	0.952344	0.35
FDI(-4)		0.074926	0.242671	0.308755	0.7601
Period 3:	**1991-2011**				
FDI		0.011796	0.004489	2.627816	0.0145
FDI(-1)		0.010299	0.005683	1.812351	0.082
FDI(-2)		-0.00477	0.006438	-0.74103	0.4656
FDI(-3)		0.004294	0.005932	0.723846	0.4759
FDI(-4)		0.027228	0.008422	3.232788	0.0034
Period 4:	**2012-2019**				
FDI		0.035712	0.009976	3.579733	0.0014
FDI(-1)		-0.00938	0.014567	-0.64393	0.5255
FDI(-2)		0.029411	0.01219	2.412664	0.0235
FDI(-3)		0.030399	0.012197	2.4924	0.0197
FDI(-4)		-0.01735	0.007014	-2.47311	0.0205
Control Variables / Non-Breaking Values					
Constant		-0.4176	0.010983	-38.0237	0.0000
Dependent Variable		ln(TFP)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.95772			

Source: Authors' calculation

Table 5: Effect of FDI on Growth in Total Value Added by Service Sector

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-0.73568	0.354506	-2.07522	0.0489
FDI(-1)		-0.52393	0.39631	-1.32202	0.1986
FDI(-2)		-0.76728	0.392749	-1.9536	0.0625
FDI(-3)		-0.48094	0.352866	-1.36295	0.1856
FDI(-4)		-0.81828	0.318098	-2.5724	0.0167
Period 2:	**1986-1990**				
FDI		0.339618	1.240883	0.27369	0.7867
FDI(-1)		-1.22611	0.783947	-1.56402	0.1309
FDI(-2)		-0.79755	1.194616	-0.66762	0.5107
FDI(-3)		1.653998	1.085845	1.523235	0.1408
FDI(-4)		-0.66151	1.243147	-0.53212	0.5995
Period 3:	**1991-2011**				
FDI		0.069026	0.022991	3.002254	0.0062
FDI(-1)		0.051005	0.029422	1.733598	0.0958
FDI(-2)		-0.02247	0.034099	-0.6589	0.5162
FDI(-3)		0.029354	0.030544	0.961036	0.3461
FDI(-4)		0.144864	0.048288	2.999975	0.0062
Period 4:	**2012-2019**				
FDI		0.192094	0.051255	3.747779	0.001
FDI(-1)		-0.04955	0.074606	-0.66414	0.5129
FDI(-2)		0.110392	0.062456	1.767511	0.0899
FDI(-3)		0.108015	0.06247	1.729087	0.0966
FDI(-4)		-0.01763	0.035973	-0.49	0.6286
Control Variables / Non-Breaking Values					
Constant		12.05482	0.148642	81.09959	0.0000
HCF GR		-3.17993	7.983504	-0.39831	0.6939
Dependent Variable		ln(TVA S)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.972897			

Source: Authors' calculation

Table 6: Effect of FDI on Growth in Total Value Added by Industry

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-0.59679	0.306776	-1.94535	0.0635
FDI(-1)		-0.56985	0.334852	-1.7018	0.1017
FDI(-2)		-0.60055	0.325616	-1.84436	0.0775
FDI(-3)		-0.44954	0.295801	-1.51972	0.1416
FDI(-4)		-0.76047	0.250171	-3.03981	0.0056
Period 2:	**1986-1990**				
FDI		0.134093	1.070477	0.125265	0.9014
FDI(-1)		-1.07234	0.655859	-1.63501	0.1151
FDI(-2)		-0.58313	1.025677	-0.56854	0.575
FDI(-3)		1.603615	0.9168	1.749144	0.093
FDI(-4)		-0.50071	1.043077	-0.48003	0.6355
Period 3:	**1991-2011**				
FDI		0.068535	0.019303	3.550561	0.0016
FDI(-1)		0.039037	0.024963	1.563766	0.131
FDI(-2)		-0.00807	0.028543	-0.28278	0.7798
FDI(-3)		0.028853	0.025423	1.134929	0.2676
FDI(-4)		0.103733	0.038792	2.674088	0.0133
Period 4:	**2012-2019**				
FDI		0.16566	0.043357	3.820872	0.0008
FDI(-1)		-0.04126	0.063435	-0.65036	0.5216
FDI(-2)		0.094319	0.052207	1.806631	0.0834
FDI(-3)		0.087417	0.052235	1.673515	0.1072
FDI(-4)		-0.00633	0.030267	-0.20906	0.8362
Control Variables / Non-Breaking Values					
Constant		11.67146	0.050666	230.3589	0.0000
INV GR		0.391731	0.424136	0.923597	0.3649
Dependent Variable		ln(TVA IND)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.975684			

Source: Authors' calculation

Table 7: Effect of FDI on Growth in Total Value Added by Agriculture

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-0.28844	0.173713	-1.66041	0.1093
FDI(-1)		-0.43828	0.194839	-2.24944	0.0335
FDI(-2)		-0.03956	0.191725	-0.20632	0.8382
FDI(-3)		-0.35497	0.173929	-2.04086	0.052
FDI(-4)		-0.39388	0.147428	-2.67167	0.0131
Period 2:	**1986-1990**				
FDI		-0.19706	0.611641	-0.32218	0.75
FDI(-1)		-0.66636	0.385797	-1.72723	0.0965
FDI(-2)		-0.24104	0.588631	-0.4095	0.6857
FDI(-3)		1.116224	0.535007	2.086373	0.0473
FDI(-4)		-0.17958	0.612617	-0.29314	0.7718
Period 3:	**1991-2011**				
FDI		0.026098	0.011332	2.303006	0.0299
FDI(-1)		0.013445	0.014346	0.937251	0.3576
FDI(-2)		-0.00698	0.016252	-0.42966	0.6711
FDI(-3)		0.015694	0.014976	1.047928	0.3047
FDI(-4)		0.049426	0.021262	2.324591	0.0285
Period 4:	**2012-2019**				
FDI		0.067465	0.025185	2.678834	0.0129
FDI(-1)		-0.02886	0.036773	-0.7849	0.4399
FDI(-2)		0.057755	0.030774	1.876765	0.0723
FDI(-3)		0.046419	0.03079	1.507615	0.1442
FDI(-4)		-0.00983	0.017708	-0.55491	0.5839
		Control Variables / Non-Breaking Values			
Constant		12.10001	0.027725	436.4224	0
Dependent Variable		ln(TVA_AG)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.959903			

Source: Authors' calculation

Table 8: Effect of FDI on Employment Growth

Variable		Coefficient	Std Error	t-Statistic	p-Value
Period 1:	**1974-1985**				
FDI		-0.30135	0.132524	-2.27389	0.0322
FDI(-1)		-0.26275	0.144653	-1.81638	0.0818
FDI(-2)		-0.34578	0.140663	-2.45818	0.0216
FDI(-3)		-0.23705	0.127784	-1.85507	0.0759
FDI(-4)		-0.37198	0.108072	-3.442	0.0021
Period 2:	**1986-1990**				
FDI		0.067711	0.462437	0.146422	0.8848
FDI(-1)		-0.48853	0.283326	-1.72427	0.0975
FDI(-2)		-0.29191	0.443084	-0.65882	0.5163
FDI(-3)		0.627946	0.396049	1.585525	0.1259
FDI(-4)		-0.28888	0.4506	-0.64111	0.5275
Period 3:	**1991-2011**				
FDI		0.015966	0.008339	1.914681	0.0675
FDI(-1)		0.009598	0.010784	0.890044	0.3823
FDI(-2)		-0.00832	0.01233	-0.67513	0.506
FDI(-3)		0.003423	0.010982	0.311663	0.758
FDI(-4)		0.034688	0.016758	2.069953	0.0494
Period 4:	**2012-2019**				
FDI		0.034745	0.01873	1.855051	0.0759
FDI(-1)		-0.01301	0.027403	-0.47465	0.6393
FDI(-2)		0.017472	0.022553	0.774685	0.4461
FDI(-3)		0.010301	0.022565	0.456495	0.6521
FDI(-4)		0.006421	0.013075	0.491102	0.6278
Control Variables / Non-Breaking Values					
Constant		5.871095	0.021887	268.2402	0.0000
INV GR		0.120272	0.183223	0.656426	0.5178
Dependent Variable		ln(EMP)			
Sample		1970-2019			
Method		Least Squares with Breaks			
Prob(F-statistic)		0.0000			
Adjusted R Squared		0.948188			

Source: Authors' calculation

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