A Publication of Gulati Institute of Finance and Taxation

Kerala Economy

April - June 2025 Vol.6 No.2

GIFT GULATI INSTITUTE OF FINANCE AND TAXATION

KERALA ECONOMY

A PUBLICATION OF GULATI INSTITUTE OF FINANCE AND TAXATION

Address
Gulati Institute of Finance and Taxation,
GIFT Campus, Chavadimukku,
Sreekariyam, Thiruvananthapuram, Kerala - 695017.
Phone : 0471 2596970, 2596980, 2590880, 2593960.
Email : keralaeconomy@gift.res.in

This publication is partially supported by a generous publication grant from Indian Council of Social Science Research (ICSSR)

Printed and published by K J Joseph on behalf of Gulati Institute of Finance and Taxation, Thiruvananthapuram. Printed at Time Offset Printers, Thiruvananthapuram. For private circulation. Not for sale.

Contents

Kerala Economy
Vol.6 No.2 April-June 2025

The long run equilibrium between minimum support price and production: The case of rice and wheat in India

Roy Scaria & Amrutha NR.

Abstract

Agricultural price policy in India since independence occupied a central stage in controlling inflation and providing essential items at reasonable prices. By the formation of the CACP in1965, this policy stance was added with the additional objective of awarding farmers with a remunerative price which ensures a reasonable level of income as inducement hoping to reduce the raging incidence of poverty and attain self-sufficiency in foodgrain production. Although the excessive focus on price inducement policy in relative exclusion of the non-price interventions in the postreform led to agrarian distress to a certain extent, the objective of self-sufficiency in production and considerable reduction in poverty have been attained. Now the government has more than sufficient buffer stock of foodgrains in its granaries and is forced to export the excess stock with a subsidy. In this context, this paper examines the long run responsiveness of production of rice and wheat to their MSPs and found cointegrating relationships. The lagged values of the MSPs have significant coefficients whereas the coefficients of lagged values of production are not at all significant. This finding has economic implications.

Keywords: *Cointegration, error correction, minimum support price, foodgrain production*

JEL Classification Code: *C01, C13, Q10, Q18*

1. Introduction

Agricultural price policy has a crucial role to play in countries like India, which was liberated to underdevelopment, poverty and predominance of the agricultural sector. The ensuing analysis shows that ensuring reasonable and descent prices for agricultural crops brings food security, reduce poverty, entitles incomes to the farmers, generate demand for manufacturing goods and many more. This paper examines the long run relationship, if any that exists between the production of rice and wheat, two staple food grains in the country and their minimum support prices (MSP) declared from 2001-22 to 2021-22.

The growth of output, investment and technological innovation, productivity improvement and an increase in net sown area in the agriculture sector of an economy which is characterized with high rate of poverty and hunger has peculiar importance in its transformation towards a modern, vibrant hunger free economy. The initial goal definitely must be poverty reduction and achieving food security. An economy which is dreamt of by the classical thinkers is not suitable for protecting the livelihood, production and employment in the most vulnerable sector, the agriculture in a developing economy. Keeping this in view, planners and policy makers in India, from the very outset of independence, followed protectionist policies, which comprised price and non- price interventions. Although, India had embarked on economic reforms in the biggening of 1990s, most of the protectionist policies including price interventions continued in agriculture.

Wheat and Paddy are two crops for which the government's procurement system has been relatively robust and effective (Shweta Saini and Ashok Gulati, 2017). Major price intervention policy takes the form of a Minimum Support Price (MSP), which in its essence and consideration for inclusion of components changed a lot in the course time since its inception, has been influencing production, income for farmers, investment and innovation in agriculture by private stakeholders including farmers. The practice of protectionist agenda made the country self-sufficient in foodgrain production in 1971, and to keep sufficient or beyond those levels the buffer stocks of foodgrains required for its Public Distribution System (PDS) supplies and intra year and inter year price stabilization policies. Although, later India had sanctioned exports of rice and wheat, the international price for wheat and rice stands much lower compared to the MSP, procurement prices and open market prices in India, the export could be undertaken with a price subsidy that exert severe strain on government exchequer.

A brief review of agricultural price policy in India

Although during earlier times in India, agricultural price policy was meant to regulate price increases that adversely affects the vulnerable sections of the population, the

government did not deliberately kept prices at a very low level except in a brief period around 1955 when prices of agricultural commodities fell sharply. The then 'policy maker can be blamed for not following a more imaginative price policy' (Dantwala, 1967). After the formation of the Commission for Agricultural Costs and Prices (CACP) in 1965, the agricultural price policy was aimed to protect both producers and consumers alike. The Commission was asked to fix remunerative MSP to farmers. Achieving food security at the national and household levels was very important. This could be accomplished by ensuring sufficient production of foodgrains and make it available to the poor and entitle them with reasonable income. The farmers must get a remunerative price which prompt them to make investment and induce to produce more.

The cost of production was the basis of fixing the support price. Among many cost concepts, important ones are C2, C2*and C3. Cost C2 contains all paid-out and fixed costs including imputed interest on owned fixed capital, imputed rental value of owned land and imputed value of family labour. Cost C2* is the same as C2 with all labour evaluated at statutory minimum wages in case these are higher than the actual wages paid by the farmer. Naturally, cost C2* is marginally higher than the cost C2 (Acharya, 1997), To account for the managerial input of the farmer, cost C3 is computed by raising cost C2* by 10 per cent. While it may appear to be appropriate to take into account cost C3 for deciding upon the level of minimum support price, it needs to be recognised that the cost C3, besides including the imputed value of family labour and imputed interest on owned fixed capital, also includes several elements of income attributable to the farmer like the imputed rental value of owned land and return for management input of the farmer. Thus, higher the cost, higher the cost-based price and higher the income (Dantwala, 1981).

This change in basic assumptions in the agricultural price policy was justified on many grounds. India had to put an end to the dependence on the US PL-480 scheme, through which low priced foodgrains depressed domestic foodgrain prices and production (Dantwala, 1967). About 40 per cent of the rural population and around 50 per cent of the urban population in the country was suffering from poverty in latter half of 1960s (Dandekar and Rath Estimates, Dutt Rudder, 2000), and as a usual consequence children in the poverty ridden families were undernourished.

In a country with more than 45 per cent of the work force depending on agriculture for livelihood, agricultural income had a far-reaching impact on poverty reduction as well as on rural development (Kapila Uma, 2024). The world development report clearly says that "GDP growth originating in agriculture is at least twice as effective in reducing poverty as GDP growth originating outside agriculture" (WDR,2008). The approach paper to the 12th five-year plan (2012-17) states that "a one per cent growth emanating from the agriculture sector would be at least two to three times more effective in reducing poverty than the same growth coming from non-agricultural

sector" (Gulati, 2012). Agriculture forms the resource base for a number of agro-based industries generating employment and income. The fact that an average Indian spends more than 50 per cent of his monthly expenditure on food establishes the centrality of agriculture in the context of food security concerns. Therefore, the agricultural price policy framed in the general goal of rural development and poverty reduction until the start of new economic policies.

This policy drift with other non-price measures including the use of HYV seeds which was supported by public investments in fertilisers, power, irrigation and credit (Gulati and Fan, 2008), produced miraculous results. The total amount of foodgrains harvested increased from 74 MT in 1966-67 to 105 MT in 1971-72. In the same year the country became self-sufficient in grain production; declined imports nearly zero (India, Ministry of Agriculture, 2003). The crux behind the real success of these measures was the favourable price policy which aimed to increase the farmer incomes. In continuation of this policy milieu, the rice and wheat production soared from 37 and 12 mt in 1964 to 63.8 and 47 MT respectively in 1986. India had for the first time a 25.4 MT buffer stock of foodgrains in the year, which made the country bravely face, the worst drought in 1987, without any loss of lives (Kapila Uma, 2024).

The new regime under the new economic policy 1991 witnessed higher reliance on price policy and price interventions resulting in relative exclusion of non-price interventions. The new regime has been characterized with 'high-input and high-output prices' in place of the earlier policy of 'low-input and low-output' (Acharya, 1997). Consequent upon this policy shift, public investment on irrigation, research, extension and related infrastructure went down which are important determinants of agricultural production in India (Dantwala, 1967). Although initially this decline was compensated by private investment, it was stopped by late 1990s, due to complementarity between public and private investment. In effect, technology development, dissemination and adoption in agriculture faced a major setback and hence the yield growth went down leading to rising cost of production necessitated higher support prices to sustain the long run margin of 20 per cent over cost of production.

With admirable progress in maintaining food security, the farming community faced agrarian distress which had the ramifications as rising debt, loan default, negative net worth, rising hunger, sale of farm and family assets to meet family expenditure and in the extreme case, tragedies like suicides by the close of the 1980s and 1990s. Farmers even from the agriculturally developed states like Haryana, Panjab and Kerala reported to have faced it. The problem was terribly acute during 2014-15 and 2015-16 due to successive failures of monsoon and abnormal rainfall.

The agrarian distress in the country is rooted in the structural imbalance of the economy which is reflected in the share of agriculture in national income vis-à-vis its

share in workforce and ratio of per worker income in agriculture vis a vis non-agriculture.

Table 1 : Share of agriculture and non-agriculture sectors in national income and workforce (%)

Year	Share in national income		Share in workforce	
	Agriculture	Non agriculture	Agriculture	Non agriculture
1950-51	51.81	48.19	68.85	31.15
1960-61	42.56	57.44	69.41	30.59
1970-71	41.95	58.05	69.36	30.64
1980-81	35.39	64.61	59.02	40.98
1990-91	29.02	70.98	58.38	41.62
2000-01	23.02	76.98	58.2	41.8
2010-11	18.21	81.79	54.59	45.41

Sources of Basic data: 1. National Account Statistics, CSO, GoI. 2. Agricultural Statistics at a glance 2016, Ministry of Agriculture and Farmers welfare, GoI.

Although during the period of sixty years ranging from 1950-51 to 2010-11, the share of agriculture in national income had declined from 51.81 per cent to 18.21 per cent, a normal outcome of the development process, the share of the work force in agriculture sector did not fall much. The relative position of the farming households deteriorated which can be attributed to the jobless growth in the nonfarm sectors, the major contributor to the national income growth in the postreform period. The nonfarm sector has been unable to pull the work force from agriculture sector after 1981.

MSP of rice and wheat to support farmers has been raised substantially in post reform years too. During 1992-93 to 1999-2000, the annual increase in MSP exceeded annual average inflation [Economic Survey (2000-2001)]. For example, against the annual inflation of 7% measured in terms of wholesale price index, the MSP for rice and wheat grew at the rate of about 10% and 11% respectively (Jha & Srinivasan, 2006).

In the biggening of the new millennium too, the government offered higher minimum support prices for paddy to farmers. MSPs for paddy (rice) were increased by an average of 20 per cent per annum during the three years 2007-08 to 2009-10. The five years, 2007 to 2012 witnessed substantial MSP increases and increased support from policies and programs for cereal farmers. Close to 12 MMT of rice was added to production levels in response to price incentives except in the drought year of 2009

during the five years (Shweta Saini and Ashok Gulati, 2017). The supply elasticity of rice and wheat with respect to their minimum support price (MSP) was estimated to be 0.32 and 0.21 respectively (Mohankumar & Premkumar, 2018). Although the response was inelastic, but positive. Even amidst surplus food grain production, India has been facing the problem of hunger. Global Hunger Index 2020 highlight that about 14 per cent of Indian population suffer hunger (Vereesha, 2021). This is quite ironical.

It has been argued that an effective measure to reduce government costs would be to reduce the level of MSP, for which there is now a consensus. In the past, GOI fixed it at the level of "C2 cost of production". However, in recent years political compulsions have led to setting of MSP at much higher levels than C2 cost. This has benefited farmers in surplus states tremendously. The large farmers in surplus states gained as much as 10 times the marginal farmers (Jha & Srinivasan, 2006). However, there are evidence that in the eastern states in India (Bihar, eastern Uttar Pradesh, Jharkhand, Odisha, and West Bengal) the realisation of MSP was around 20 per cent less due to excessive dependence of small and marginal farmers on local traders for the sale of their produce. It has been further argued that the prices that farmers receive from informal channels are less than those realised by selling to government agencies (Kumar. A, Sonkar & Bathla, 2022).

There are concerns relating to definition of cost of production on which MSP should be based. Some of the cost concepts like Cost C3 are such that the price based on those costs is not relevant to qualify as "minimum support price". There is a need to develop more relevant norms/ criteria for price support. (Ramesh Chand, 2003). Therefore, it is alleged that MSP for rice and wheat are at exorbitant levels now. Although, the Monetary Policy Committee (MPC) on August 1, 2018 divulged after the declaration of hike in policy rate about 0.25 basis points that the major factor contributing to domestic inflation was the escalation of demand resulting from the declared minimum support price for kharif crops, statistical evidence of correlation between retail inflation and MSPs was, however, not found significant (Mohankumar & Premkumar, 2018). The high MSP rate would not be the prime cause for rising retail inflation in India (Mohankumar & Premkumar, 2018).

Research methods

The study involves investigating long run relationship between Minimum Support Price (MSP) and production of rice and wheat. Advanced time series techniques which involve testing for stationarity and cointegration have been employed. The presence of a significant cointegration coefficient is the evidence for short run error correction and maintaining equilibrium between MSP and production and that reflects the effectiveness of the variations of the former on the latter.

MSP of rice and wheat are determined exogenously by the Commission for Agricultural Costs and Prices from time to time based on various considerations detailed above. Letting Y_{1t} production of rice Y_{2t} production of wheat, X_{1t} MSP of rice and X_{2t} MSP of wheat, and assuming that Y_{1t}, X_{1t-1}, Y_{2t} and X_{2t-1} are integrated of order one, I(I) variables we have the following basic regressions.

$$Y_{1t} = \alpha_1 + \beta_1 X_{1t-1} + e_{1t} \quad \ldots\ldots (1)$$

$$Y_{2t} = \alpha_2 + \beta_2 X_{2t-1} + e_{2t} \quad \ldots\ldots (2)$$

Since MSPs are exogenous, equations (1) and (2) are normalised on MSPs. The long run relationship between Y_{1t} and X_{1t-1} and Y_{2t} and X_{2t-1} can be established, that these variables are cointegrated , if $\hat{e}_{1t} \sim I(0)$ and $\hat{e}_{2t} \sim I(0)$ If the estimated errors are stationary in levels, we may fit the following error correction equations.

$$\Delta Y_{1t} = \delta_1 + \gamma_1(\hat{e}_{1t\ 1}) + v_{1t} \quad \ldots\ldots (3)$$

$$\Delta Y_{2t} = \delta_2 + \gamma_2(\hat{e}_{2t-1}) + v_{2t} \quad \ldots\ldots (4)$$

γ_1 and γ_2 are cointegrating coefficients shows the speed with which respective explained variable adjusts to disequilibrium in the previous period. Substituting $\hat{e}_{1t-1} = Y_{1t-1} - \alpha_1 - \beta_1 X_{1t-2}$ and $\hat{e}_{2t-1} = Y_{2t-1} - \alpha_2 - \beta_2 X_{2t-2}$ in equations (3) and (4) and solving for Y_{1t} and Y_{2t}, we have,

$$Y_{1t} = (\delta_1 - \gamma_1\alpha_1) + (\gamma_1 - 1)\,Y_{1t-1} - \gamma_1\beta_1\,X_{1t-2} + v_{1t} \quad \ldots\ldots\ldots (5)$$

$$Y_{2t} = (\delta_2 - \gamma_2\alpha_2) + (\gamma_2 - 1)\,Y_{2t\ 1} - \gamma_2\beta_2\,X_{2t\ 2} + v_{2t} \quad \ldots\ldots\ldots (6)$$

Equations (5) and (6) give the long run path Y_{1t} and Y_{2t} for given or predetermined values of the explanatory variables.

Data sources and variables

This study is based on time series data collected from Economics, Statistics and Evaluation Division, Department of Agriculture and Farmer's Welfare, Ministry of Agriculture and Farmer's Welfare, Government of India for the period from 2001-02 to 2021-22. Data on production have been collected and compiled from Ministry's publication, 'Agricultural Statistics at a Glance 2023', and on Minimum Support Price from MSP statements for various years since 2001-02. MSP Although the kharif and rabi season ranges over June-October and October -March respectively and the harvest season relating to them ranges over September-October and April-May, each year the government did not declare MSP on a uniform date. Since paddy is both a kharif and rabi crop, and the kharif season accounted for a major share of paddy crop, the late declaration of support prices prevents farmers to plan accordingly and the decisions depends mostly on previous year MSP. Therefore, MSP for rice is assumed to affect production of rice with a one period time lag. But wheat is a rabi crop and in most

years the MSP declaration of all crops including wheat happens in months prior to the sowing time, MSP during the current period itself affects wheat production.

Results and discussion

The first and foremost step is to examine the suitability of time series data sourced above for model fitting and the type of model to be employed for which stationarity tests are important. Table 2 shows that none of the variables under consideration is stationary at levels at any of the acceptable level of significance, one per cent, five per cent or ten per cent. The first difference of these variables, namely, production of rice, MSP of wheat and production of wheat are stationary at five per cent level of significance. The MSP of rice is stationary at 5.88 per cent which is less than the conventional 10 per cent level of significance.

Table 2. ADF test result

Sl. No	Variable	Variables in levels I (0)		Variables in first differences I (1)	
		ADF Value	Prob.	ADF Value	Prob.
1	MSP of rice	1.199234	0.9968	-2.963657	0.0588***
	-3.029970*	0.05	-2.666593**	0.05	
2	Production of rice	-0.448431	0.8823	-10.89908	0.0000
	-3.020686*	0.05	-3.029970*	0.05	
3	MSP of wheat	-0.022825	0.9436	-5.335374	0.0008
	-3.052169*	0.05	-3.091002*	0.05	
4	Production of wheat	0.454901	0.8811	-5.749321	0.0002
	-3.020686*	0.05	-3.029970*	0.05	

**, ** Critical ADF values at 5 and 10 per cent level of significance respectively*

****significant at 5.88 per cent level.*

Note. MSP of rice is taken with one period lag.

Source: Author's calculation.

Since the variable are identified as I (1), it is natural to investigate for the existence of a long run equilibrium between the production of rice and its MSP and the production of wheat and its MSP. If long run equilibrium does exist, such variables are said to be cointegrated. Cointegration occurs when two or more nonstationary time series at levels have a long run equilibrium; that they move together in such a way that their linear combinations result in a stationary time series. In a two-variable case, the usual procedure is a two stage least square in which first estimate the basic regression, and testing the estimated errors for stationarity. If the estimated error is stationary at any of the acceptable levels of significance, the variables are cointegrated.

Trends in MSP for and production of rice

The MSP for rice is measured in rupees (nominal) per quintal which stood at Rs. 530 in 2001-02 gradually rose to Rs. 1940 in 2021-22. Comparing the price in 2001-02, around 100 per cent increase was registered in 2011-12 and another 129 per cent in 2018-19 and by 2021-22, 266 per cent (Fig.1). In the meantime, production of rice rose from 93.34 million tonnes in 2001-02 to 105.3 million tonnes in 2011-12, to 116.48 in 2018-19 and further to 130.29 million tonnes in 2021-22 (Fig.2).

Fig 1. The trends in MSP for rice

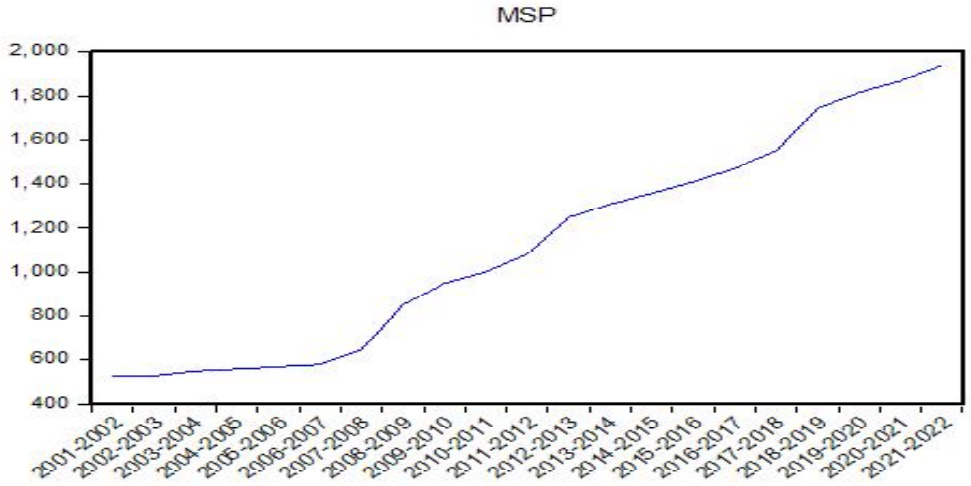
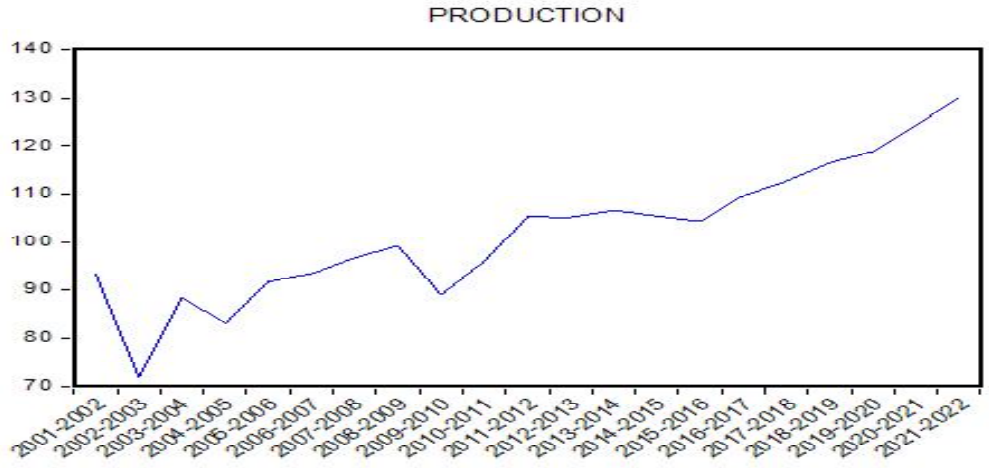


Fig 2. The trends in production of rice



Testing for cointegration between MSP for and production of rice

Since the variables MSP for rice and production of rice are I (1), cointegration can be checked by running regression for equation (1) and testing the estimated errors from the model for a unit root. The output of the basic regression is given in Table 3 and the unit root test result is given in Table 4.

Table 3 Basic regression of production of rice on MSP of rice.
Dependent Variable: Production of rice Method: Least Squares Sample (adjusted): 2 21
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	72.21414	3.383444	21.34338	0.0000
MSP(-1)	0.027971	0.002883	9.703794	0.0000

Source: Author calculation

The one year lagged values of MSP for rice has a significant coefficient on the production of rice. The constant is also significant. Thus, there are valid and explainable linear combinations between values of MSP for rice and the values of production of rice. The estimated errors is stationary, because the estimated ADF test statistic -4.537677 with probability 0.0001 is less than the critical value of the test statistic -1.9601171 at five per cent level (Table 4). Since x not having a unit root, cointegration do exist between the production of rice during period and the MSP fixed for rice in the period *,t-1 .*

Table 4 Unit root test result

Null Hypothesis: E1T has a unit root Exogenous: None			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.537677	0.0001
Test critical values:	5% level	-1.960171	

Source: Author calculation

Estimation of the speed of short run adjustment

The existence of cointegration between MSP for rice and production of rice confirms the long run relationship or equilibrium between them. Most probably, the source of short run disequilibrium is the exogenously changing MSP. Once there is a shock, that MSP changes, production aligns with the MSP. The short run (annual) response of rice production to variations in its MSP or the speed of adjustment in the system can be estimated using equation (3) in which change in production is defined as a function of the error.

Table 5 Regression for short run error correction

Dependent Variable: d (Production of rice)
Method: Least Squares
Sample (adjusted): 2 21

Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.847500	1.266406	1.458853	0.1618
$\hat{e}_{1t}$	0.966404	0.226585	4.265089	0.0005

Source: Author calculation

The regression output gives surprising result. The constant is not significant even at 10 per cent level of significance and hence its value can be regarded as zero instead of 1.8475. The error is corrected at the rate 96.64 per cent per period. As we assume a one-year lag to the MSP to affect production, it implies that 96.64 per cent of the shock in the previous period is corrected in the current period production of rice.

Estimating production of rice

The long run movement of production of rice can be estimated using equation (5) which is arrived at by solving for the variable rice production instead of using change in production as the dependent variable. It is evident from equation (5) that current year production of rice is a function of previous period production and two period lagged values of the MSP fixed by the government. Running OLS, the regression output is shown in Table 7.

Table 6 estimation of rice production
Dependent Variable: Production of rice
Method: Least Squares
Sample (adjusted): 3 21

Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	56.96732	12.56606	4.533428	0.0003
PRODUCTION(-1)	0.257019	0.168122	1.528760	0.1459
MSP(-2)	0.020336	0.004967	4.094051	0.0008

Source: Author calculation

The constant, 56.96732 of the regression is highly significant. Although the lagged MSP values significantly affect current period production of rice with the coefficient, 0.02 with probability 0.0008, the coefficient 0.257 is less precise with high standard errors makes it insignificant. This result is astonishing that the previous period production is not at all affecting current period production. Farmers can keep land as well as capital goods for farming idle, if the price condition is not suitable. The only explanatory variable that affects the current period production of rice is the two period lagged values of MSP. If we omit the unnecessary or insignificant variable from the model that estimated in table 6, the coefficient of the two period lagged MSP values improves with greater precision (low standard error) Table 7.

Table 7 estimation of rice production (excluding insignificant variable)
Dependent Variable: Production of rice
Method: Least Squares
Sample (adjusted): 3 21
Included observations: 19 after adjustments

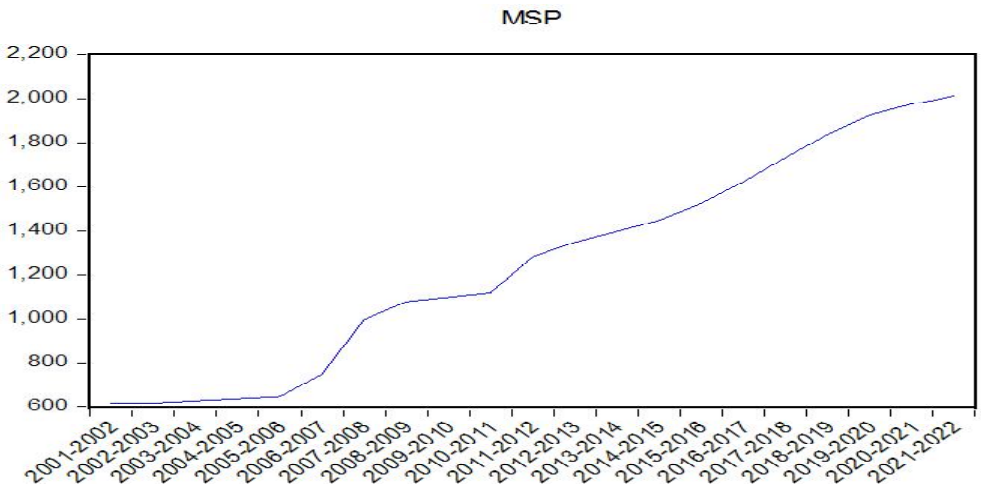
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	75.81460	2.525799	30.01608	0.0000
MSP (-2)	0.027174	0.002244	12.10788	0.0000

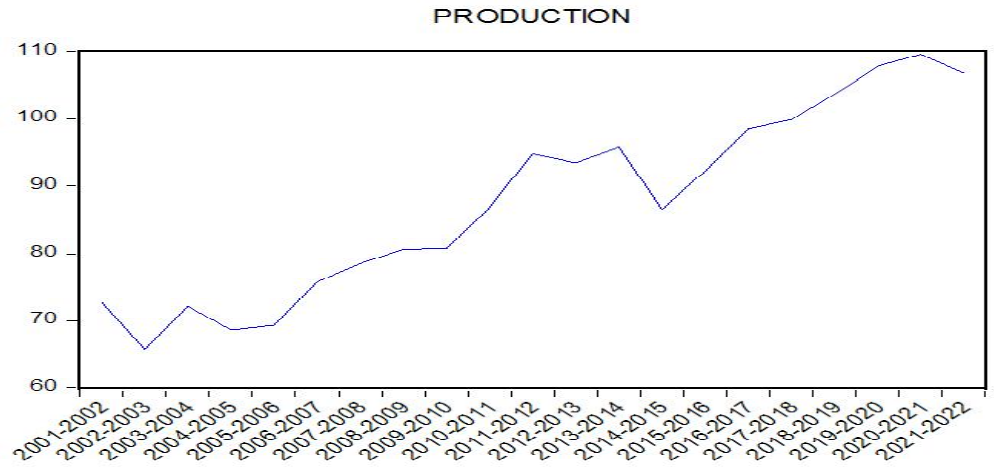
Source: Author calculation

Trends in MSP for and production of wheat

Although, a little bit repetitive, for the academic interest, one may be eager to examine the same type models hold good for the production of wheat, since both are the important staple food, in the country. One difference of assumptions that could be noticed is that MSP for wheat affects its production in the current period itself.

The progression of wheat price also fetches the same pattern as that for rice. The MSP for wheat per quintal remains at Rs. 620 in 2001-02 and it increased to Rs.2015 in 2021-22, 225 per cent growth over the period. The cumulated growth rate of MSP for wheat compared to the year 2001-02 as base crossed the 100 per cent level in 2011-12 and around 200 per cent in 2018-19 (Fig.3). Meanwhile production of wheat increased from 72.77 million tonnes in 2001-02 to 94.88 million tonnes in 2011-12, further to 103.6 million tonnes in 2018-19 and 106.84 million tonnes in 2021-22 (Fig.4).





Testing for cointegration between MSP for and production of wheat

As we have noticed that the variables MSP for wheat and production of wheat are I (1), the existence of likely long run relationship or whether these variables are cointegrated can be checked by running regression for equation (2) and testing the estimated errors for a unit root. The result of such a regression and the Augmented Dickey Fuller test details for the errors derived from the basic regression are presented in Tables 8 and 9 respectively.

Table 8 Basic regression of production of rice on MSP of rice

Dependent Variable: Production of wheat

Method: Least Squares

Sample (adjusted): 1 21

Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	52.50041	1.973010	26.60930	0.0000
MSP	0.028032	0.001471	19.05077	0.0000

Source: Author calculation

All the coefficients for the basic regression of production of wheat on its MSP are highly significant. The estimated errors do not have a unit root because the estimated ADF statistic -4.086012 with probability 0.0003 is sufficiently lower to reject the null hypothesis that has a unit root. Thus, the estimated errors are stationary indicating the presence of a log run equilibrium between the production of and MSP fixed from time to time for wheat.

Table 9 Unit root test result

Null Hypothesis: E2T has a unit root Exogenous: None			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.086012	0.0003
Test critical values:	5% level	-1.959071	

Source: Author calculation

Once cointegration is detected, it is imperative to estimate the speed with which a disequilibrium condition is getting corrected period after period. This entails the estimation of the error correction model based on equation (4) as done in Table 10. Both coefficients, the constant and error correction are significant at five per cent level of significance. It is interesting to not that the error correction coefficient has a value 1.02. It means that the system corrects more quickly in an explosively manner and eventually leads to instability in the prediction of the explained variable, production of wheat. The long run equilibrium need not be a stable one.

Table 10 Regression for short run error correction

Dependent Variable: d (Production of wheat)

Method: Least Squares

Sample (adjusted): 2 21

Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.850921	0.776961	2.382256	0.0284
$\hat{e}_{2t}$	1.020376	0.254600	4.007761	0.0008

Source: Author calculation

With our formulation in equation (6), the production path for wheat can be estimated using OLS as is shown in Table 11. The constant 46.04307and the coefficient for one period lagged values of MSP, 0.024691 are significant at one per cent level. However, the coefficient 0.142230 for the lagged values of production of wheat is less precise and not significant even at 10 per cent level of significance. In the case of wheat also, the long run determinants do not include lagged values of production of wheat. Instead, the lagged values of the MSP alone determine current period production of wheat.

Table 11 Regression for long run production of wheat

Dependent Variable: Production of wheat

Method: Least Squares

Sample (adjusted): 2 21

Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	46.04307	15.33940	3.001622	0.0080
PRODUCTION(-1)	0.142230	0.290308	0.489929	0.6304
MSP(-1)	0.024691	0.008490	2.908463	0.0098

Source: Author calculation

Summary and conclusions

Cointegrating or long run relationship exists between the MSP for and production of both rice and wheat for the last 20 years, ranging over the period 2001-02 to 2012-22. The features of the data set and the particular nature of the movement of the MSPs and production over time for these commodities are more or less similar. The long run equilibrium between MSP for and production of rice is stable and converging since the error correction coefficient is less than one. However, the cointegrating relationship between the MSP for wheat and its production is over correcting and hence unstable, in the context that the error correction coefficient is greater than one. Although instability do exist, it may not highly explode because the coefficient was 1.02. The long run production path for both crops has similar pattern too. The lagged values of the dependent variable, production, is not at all a factor determining current values of production. The capital investment and other circumstances including labour employment is not preventing the farmers not to cultivate. The sole factor affecting the production is the lagged values of the explanatory variable, only the MSPs in both cases. Therefore, MSP can be a policy variable too.

The error correction behaviour of production in response to disturbances to MSPs or the long run behaviour of production to adjusts to MSP variations, shows that production of rice and wheat can be manipulated by varying the MSPs. The mounting buffer stocks of food grains in India is the result of transmitting every increase in MSPs into the quantity of production.

However, the downward revision of the MSP is not tenable and sound. Nominal prices, once increased are expected to be inflexible downward. The common and small-scale farmer's income immediately turns out as demand for manufacturing goods and services. Therefore, the mutually reinforcing interdependence of the agriculture and non-agriculture sectors would bring forth the economy in a sustained high growth path. This follows that, a better policy option is to diversify agriculture by extending more financial support to the cultivation of fruits and pulses, the production and consumption of which remains at very low levels even today in the country. Further, the buffer stocks of food grains should be distributed to the extremely poor based on reasonable criteria to wipe out hunger from the country.

■

(Prof. Roy Scaria is Professor, T.M Jacob Memorial Govt. College Manimalakunnu, Koothattukulam, Kerala and Amrutha N R , Postgraduate student, MA Econometrics Programme, 2023-25 batch, T.M Jacob Memorial Govt. College Manimalakunnu, Koothattukulam, Kerala.)

References

Acharya S. S. (1997). Agricultural Price Policy and Development: Some Facts and Emerging Issues. Indian Journal of Agricultural Economics. Vol. 52, No. 1.

Anjani Kumar, Vinay K. Sonkar, Seema Bathla. (2022). Does Public Procurement Benefit Paddy Farmers? EPW. Vol.57, No 21.

Dantwala M.S. (1967). Incentives and Disincentives in Indian Agriculture. Indian Journal of Agricultural Economics. Vol. 22, No. 2.

Dantwala, M.L. (1981). Agricultural Price Policy: Facts and Issues. The Economic Times, February 7, also reprinted in Pravin Visaria, N.A. Mujumdar and T.R. Sundaram (Eds.) (1996), Dilemmas of Growth: The Indian Experience. New Delhi: Sage Publications.

Dutt Rudder & Sundaram K.P.M. (2000). Indian Economy. New Delhi: S. Chand &co.

Gulati Ashok & Shenggen Fan (2008). The Dragon and the Elephant - Agricultural and Rural Reforms in China and India. New Delhi: OUP.

Gulati Ashok (2012). Reforming Agriculture. In Uma Kapila (ed.) (2012). Two Decades of Economic Reforms. New Delhi: Academic Foundation.

Jha, Shikha and P.V. Srinivasan, (2006). India - Reforming Farm Support Policies for Grains. Mumbai: Indira Gandhi Institute of Development Research (IGIDR).

Kapila Uma, 2024. Indian Economy Since Independence: A Comprehensive and Critical Analysis of India's Economy, 1947-2024. New Delhi: Academic Foundation.

Mohankumar. S & Premkumar. (2018). Minimum Support Price and Inflation. EPW. Vol.53, No 47.

Nayakara Vereesha. (2021). Economic Viability of Destroying Crops. EPW. Vol.56, No 10.

Ramesh Chand, (2003). Government Interventions in Foodgrain Markets. National Centre for Agricultural Economics and policy Research. Working Paper 19.

Shweta Saini and Ashok Gulati (2017). Price Distortions in Indian Agriculture. IBRD.

World bank (2008). World Development Report 2008; Agriculture for Development. Washington DC: IBRD.

Kerala Economy
Vol.6 No.2 April-June 2025

Toward equity in fiscal transfers: Rethinking the criteria for horizontal devolution

Shamna ThachaParamban

Abstract

The 16th Finance Commission faces the critical task of addressing the persistent issue of horizontal imbalances in the distribution of resources among Indian states. These imbalances, embedded in the design of the devolution formula, have had significant implications for the share each state receives from the central tax pool. This article critically examines the key criteria employed by the 15th Finance Commission, highlighting the structural inequities and unintended consequences, pointing out the unfairness these criteria have caused.

1. Introduction

The 16th Finance Commission (FC) is tasked with addressing the enduring challenge of horizontal imbalances in the distribution of central resources among Indian states. These imbalances, rooted in the formula used for tax devolution, have significant implications for the fiscal autonomy and developmental prospects of states. The Fifteenth Finance Commission adjusted the methodology for determining states' shares by incorporating broader considerations of fiscal needs, equity, efficiency, and performance. It assigned weightages as follows: 45% to income distance, 15% each to population and area, 10% to forest and ecology, 12.5% to demographic performance, and 2.5% to tax and fiscal efforts. Notably, the Commission shifted the population base from the 1971 census to the 2011 census, aiming to reflect contemporary demographic realities. A critical evaluation of the criteria adopted by the 15th Finance Commission reveals how the current devolution mechanism affects state shares, often to the disadvantage of certain states due to inherent structural biases. This article

examines the key criteria employed by the 15th FC and explores how these factors have influenced the inter-state allocation of resources by highlighting the inequities these criteria have generated.

The population criterion: Double-edged impact

Population is a foundational factor in the Finance Commission's resource allocation framework. It ensures that states receive resources proportional to their population size and needs, but it also serves as a major determinant of each state's share of the divisible pool of central taxes. Six Hindi-belt states, with 42.85% of India's population, receive 48.57% of the tax pool for 2021-26. In contrast, five southern states, with 21.32% of the population, get only 15.8%, while western, eastern, and northern states, with 30.61%, receive 25.31%. Northeastern and Himalayan states, with 5.32%, get 10.48%. These allocations reveal the disparities in tax distribution, emphasizing for a more equitable framework that adequately addresses the varying needs of all states (Govind Bhattacharjee ;2021)

The effect of population on resource distribution is twofold. On one hand, states with slower-growing populations see a reduction in their percentage share. As India's population has shifted over the decades, particularly in southern states, those with better-controlled population growth are now receiving a smaller share relative to others. On the other hand, population acts as a scaling factor for most other criteria used by the Finance Commission. In fact, about 75% of the transfers either directly or indirectly are influenced by population size. This makes the criterion a key player in shaping resource distribution.

From the 1971 census to the 2011 census: A shift in methodology

The 15th Finance Commission introduced a notable shift by transitioning from the 1971 census to the 2011 census for determining states' fiscal allocations. This was aimed at better reflecting current demographic realities. However, this change has been met with criticism, particularly from states that have successfully managed population growth

To mitigate the backlash, the Finance Commission introduced a new criterion called "demographic performance," with a weight of 12.5%. This criterion seeks to reward states for their efforts in controlling population growth by measuring their Total Fertility Rate (TFR). States with lower TFRs, indicating better population control, receive a higher score. However, the formula, paradoxically, continues to favour more populous states, raising questions about its effectiveness in truly reflecting states' long-term demographic achievements.

A major concern is that states that controlled their population earlier some as far back as the 1970s might not receive the same level of recognition under this criterion,

as the formula relies heavily on contemporary metrics. This raises the question of whether the demographic performance criterion adequately rewards states for their sustained efforts or overlooks their long-term success in controlling population growth. States which have successfully controlled population growth through significant investments in human development, may feel disadvantaged despite their early achievements.

The case for performance-based incentives

While the introduction of the demographic performance criterion is a step in the right direction, its weightage is insufficient to offset the overwhelming influence of population in determining states' shares. Given that 75% of transfers are determined by population, performance-based incentives must be expanded to ensure that states with slower population growth and better human capital development are not unfairly disadvantaged.

One potential improvement could involve incorporating other criteria that reflect states' fiscal needs beyond population size. For instance, factoring in the share of elderly populations could better capture the reduction in fertility and higher life expectancy. Or using the Human Development Index could reflect the unique challenges faced by states with aging populations and higher demands for education or healthcare. These measures would address second-generation problems emerging from demographic shifts, such as the need for increased social spending in states with older populations.

If the Finance Commission's formula is to continue rewarding population control, it must evolve to encompass broader human capital outcomes. By balancing historical achievements in population control with contemporary needs, the formula would align more closely with the principles of fiscal federalism, ensuring a fairer distribution of resources that supports long-term development goals.

Then, regarding tax performance .under this criterion of tax effort, States with a higher ratio of Tax/GSDP benefit more based on their tax performance. However, multiplying this ratio by the 2011 population skews the results in favour of states with larger populations. This results in states like Bihar and Uttar Pradesh appearing to have disproportionately high tax efforts, even if their actual performance might not be as robust as smaller states with better tax collection efficiency. When tax effort is evaluated based on performance criteria alone, states with efficient tax collection like Kerala see significant benefits. However, multiplying by population once again shifts the advantage to states with larger populations. To ensure fair resource allocation, the tax effort calculation should focus solely on performance criteria without multiplying by population. This would more accurately reward states for their tax collection efforts.

Table.1 - Difference in share based on tax effort

As per 15th FC (%)		Calculation based on Tax effort	
State	Share	State	Share
Uttar Pradesh	18.825	Goa	8.08
Maharashtra	10.546	Telangana	7.55
Bihar	7.651	Chhattisgarh	7
West Bengal	6.682	Uttar Pradesh	7
Madhya Pradesh	6.572	Maharashtra	6.97
Tamil Nadu	6.284	Madhya Pradesh	6.72
Rajasthan	5.645	Karnataka	6.63
Karnataka	5.454	Kerala	6.56
Gujarat	4.83	Andhra Pradesh	6.5
Andhra Pradesh	4.336	Tamil Nadu	6.47
Telangana	3.558	Punjab	6.3
Odisha	3.468	Haryana	6.25
Kerala	2.95	Odisha	6.14
Chhattisgarh	2.406	Rajasthan	6.12
Punjab	2.354	Gujarat	5.94
Jharkhand	2.235	Bihar	5.46
Haryana	2.133	West Bengal	5.44
Assam	2.042	Uttarakhand	5.11
Uttarakhand	0.694	Meghalaya	5.09
Himachal Pradesh	0.467	Himachal Pradesh	5.05
Meghalaya	0.203	Jharkhand	5.03
Tripura	0.176	Assam	4.86
Goa	0.159	Arunachal Pradesh	3.89
Manipur	0.121	Tripura	3.55
Arunachal Pradesh	0.073	Manipur	3.16
Nagaland	0.071	Sikkim	2.93
Mizoram	0.043	Mizoram	2.91

Source: Author's computation based on 15th FC data.

Note: Tax Effort (15th FC): Calculated using the ratio of a state's own per capita tax revenue to its per capita Gross State Domestic Product (GSDP), multiplied by the 2011 census data. Tax Effort (Without Population Multiplication): Calculated without multiplying by the population, providing a clearer assessment of tax effort without population distortion.

Area, Forest, and Ecology

Both the *area (15%) and forest and ecology* (10%) criteria in the 15th Finance Commission's devolution formula are not influenced by population size. The area criterion compensates states with larger geographical spread, recognizing the higher costs of governance and service delivery across vast terrains. The forest and ecology criterion rewards states for maintaining dense forest cover especially very dense and moderately dense forests acknowledging the ecological services they provide and the developmental constraints they face. Although population size does not factor into these criteria, population density is an important consideration. States with high population density face greater ecological stress and have limited space for afforestation and conservation, making the task of balancing development and environmental protection more challenging. Recognizing these pressures can enhance the equity and effectiveness of these criteria in future devolution formulas.

Income distance: A contested criterion

The second major factor influencing states' shares in central tax revenues is income distance, which currently holds a 45% weight in the horizontal devolution formula. This criterion measures the gap between a state's per capita income and the state with the highest per capita income. While it is intended to promote equity by allocating more resources to lower-income states, its reliance on per capita measures often fails to capture the diverse fiscal realities across Indian states.

Figure.1 presents the classification of states based on per capita income, categorizing them into three groups, low-income, middle-income, and high-income using the same data employed by the Finance Commission. The classification of states into each category may vary depending on their respective per capita GSDP levels during each Finance Commission's term. Notably, the share of low-income states has increased from the Thirteenth Finance Commission (TFC) to the Fifteenth Finance Commission (FFC). Conversely, the share of high-income states has declined from 23.36% to 15.57%. In contrast, middle-income states have shown an increase in their share, except during the Thirteenth Finance Commission. The Fifteenth Finance Commission recorded a higher proportion of low-income states, indicating a progressive distribution trend. In contrast, figure.2 shows that some high-income states, including Kerala, Goa, Punjab, and Tamil Nadu, experience fiscal deficit higher than the all-state average (ASA). This challenges the view that high-income states have more fiscal capacity when it looks solely on percapita income.

Figure 1: Tax share among different Income Groups in each Finance Commission

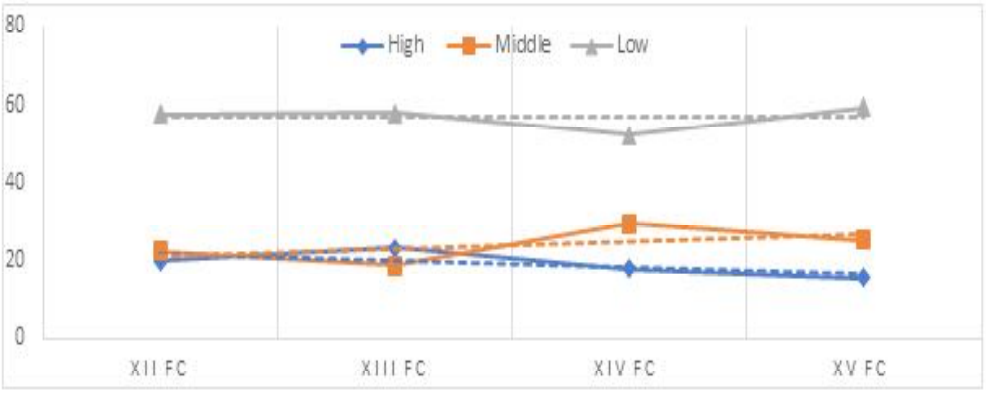
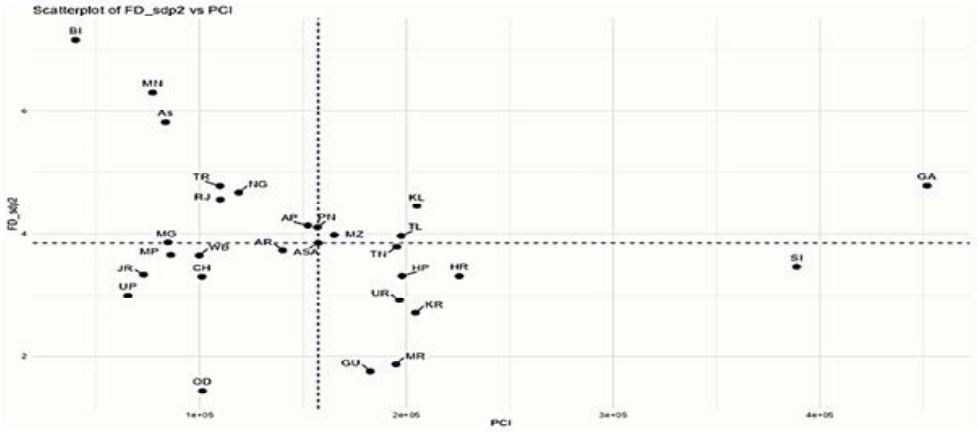


Figure.2: Per capita income and FD-A state-wise Comparison



Source: Author's computation based on RBI data on state Finances,

Note: ASA = All State Averages. The right side of the figure represents high-income states, while the left side represents low-income states. Each variable is calculated as a three-year average based on Finance Commission calculations.

Higher-income states have consistently advocated for reducing the weight of the income distance criterion, while lower-income states argue for its increase. The issue lies in the formula's narrow focus on per capita income, which does not account for income inequality within states. For instance, a state with significant income inequality may have a large portion of its population earning low incomes, which limits its tax base even though its overall per capita income appears high. Consequently, this state's ability to generate revenue is overstated, leading to an inadequate share of tax transfers.

Furthermore, structural factors such as urbanization and industrialization heavily influence a state's tax capacity. More industrialized and urbanized states typically have higher taxable economic activities, while states with larger informal sectors may struggle to generate tax revenue despite similar per capita income levels. This discrepancy underscores the limitations of the income distance criterion in achieving equitable resource distribution.

A call for refinement

To address these shortcomings, a more refined approach to income distance is required. Incorporating additional factors such as cost-of-living adjustments and structural economic conditions could lead to a more accurate assessment of states' fiscal capacities. By acknowledging the varied challenges faced by states in generating revenue, the Finance Commission can foster a more balanced and equitable distribution of resources.

Moreover, adjustments should be made to prevent states with slower population growth or higher human capital investments from experiencing share shocks. This could include smoothing mechanisms that minimize the volatility in states' shares over time, ensuring that those facing distinct fiscal challenges are not disproportionately affected.

Way forward for the 16th Finance Commission - A general perspective

- Revisit Resource Allocation Criteria: It's decisive to reassess the criteria for resource allocation to ensure fairness. This reevaluation should take into account the principles of fiscal federalism and the unique needs of each state within the GST framework.
- Include Cess and Surcharges: Enhance revenue sharing among states by including a portion of cess and surcharges in the divisible pool.
- Re-evaluate Borrowing Restrictions: Reassess the imposition of borrowing restrictions to prevent undue hindrance to states' ability to meet their financial obligations.

- Balance Fiscal Discipline and State Needs: Strike a balance between fiscal discipline and the necessity for states to finance development projects and welfare schemes.
- Evaluate Resource Allocation Criteria: Evaluate the criteria for resource allocation, considering fiscal federalism principles and state-specific needs. Alternatively, consider compensating with grants to address interstate disparities or support highly meritorious projects.
- If the criterion for performance, states should be rewarded. Avoiding the multiplicative effect of population, and focusing solely on performance-based criteria, Or compensating by other measures
- Capital Investment grants: Capital expenditure is critical for long-term economic sustainability, but it often faces severe constraints in states where revenue expenditure consumes the lion's share of the budget. A shift towards special grants for capital investment could help alleviate this problem by providing states with the necessary fiscal space to undertake crucial development projects without having to sacrifice essential welfare programs While Revenue Deficit Grants have played an important role in addressing immediate fiscal imbalances, they are not a sustainable solution to the deeper structural issues affecting state finances.

Conclusion

As the 16th Finance Commission embarks on its mandate, it has the opportunity to address the complex interplay of demographic changes and fiscal capacity in determining states' shares. By revisiting the population and income distance criteria, and incorporating performance-based incentives alongside structural adjustments, the Commission can pave the way for a more equitable and sustainable model of fiscal federalism.

This evolution in the devolution formula would ensure that states are not unfairly affected for their demographic success while fostering a more accurate reflection of fiscal realities. Aligning the formula with the diverse needs of Indian states will promote balanced development, allowing for a fairer allocation of resources that serves both historical and contemporary demands. Addressing these disparities is vital for fostering inclusive growth and upholding the principles of cooperative federalism in India. While the Finance Commission's criteria aim to ensure equitable distribution, they must evolve to reflect the changing dynamics of state economies and their developmental priorities. It is imperative to re-evaluate the criteria for resource allocation in light of the principles of fiscal federalism and the specific needs of each

state, or alternatively, to compensate through grants that address inter-state disparities. There is a pressing need to develop a more balanced and equitable framework that takes into account fiscal capacity, expenditure needs, and cost differentials across states, while also adhering to the fundamental principle of ensuring the provision of basic needs to every individual.

■

(Dr. Shamna ThachaParamban, HSST, Economics, Government of Kerala and Formerly Assistant Professor, Gulati Institute of Finance and Taxation)

References

Bhattacharjee, G., and R. Bhattacharya. 2021. "Fifteenth Finance Commission Recommendations: An Appraisal." *Economic & Political Weekly* 56(41): 14-17.

Finance Commission of India. (2014). 14th Finance Commission: Report for 2015-20 - Volume I.

Finance Commission of India. (2020a). 15th Finance Commission: Report for 2021-26 - Volume I.

Finance Commission of India. (2020b). 15th Finance Commission: Report for 2021-26 - Volume II (Annexes).

Ministry of Finance, Government of India. (2024). Union Budget 2024-25. New Delhi: Government of India. Retrieved from https://www.indiabudget.gov.in

Kerala Economy
Vol.6 No.2 April-June 2025

An analysis on political economy of health and education expenditure in India

Navya James, Niranjana Suresh and Devanandha A S

Abstract

Public expenditure is often influenced by an array of factors of which political considerations are significant. The sectors a government gives priorities will determine its growth and development path. The present study focuses on the political economy of health and education sectors from Fiscal Year 2009-10 to Fiscal Year 2023-24. It deals with how health and education spending is impacted by shifts in political power at the union government level. The study examines in detail how the trends and patterns of health and education spending have changed over the past 15 years in tandem with changing political power. The study uses descriptive analysis and as per the findings, The National Democratic Alliance (NDA I) and NDA II periods showed a different spending pattern in comparison with United Progressive Alliance (UPA II).

1. Introduction

Public expenditure is influenced by a range of factors, among which political considerations play a crucial role, alongside revenue dynamics and the broader economic position of a country. Political priorities often shape budget allocations, determining which sectors receive funding based on governance objectives, electoral commitments, and ideological perspectives. Similarly, the availability of fiscal resources-determined by tax revenues, intergovernmental transfers, and borrowing capacity-affects expenditure decisions. In addition to that the, macroeconomic conditions, including growth trends, inflation rates, and external shocks, further influence the government's spending behaviour and fiscal policy stance.

Over time, public spending has been crucial to the development of both people and physical capital. The size and pattern of public spending has great relevance in the growth process

and in the reduction of economic disparities in any nation. The pressure on public expenditure is particularly higher in developing economies because of growing population and it is an effective policy instrument in this context S. V. Seshaiah et al. (2018).

In addition to safeguarding people and property, government funding is essential for building the physical infrastructure needed to boost economic activity and create job possibilities as well as for supplying social infrastructure that enables people to find gainful employment. Public expenditure reflects the priorities and ideological inclinations of a government. A government's aims and ideological leanings are reflected in its public spending. The makeup and patterns of government spending in India provide important information about how different governments have handled problems including infrastructure, welfare, defence, and economic growth.

This study analyses the social sector expenditure in India from 2009-10 to 2023-24. This time period that spans the second term of the United Progressive Alliance (UPA-II) and the two successive terms of the National Democratic Alliance (NDA). Therefore, the study compares the social sector expenditure, especially health and education expenditure during various tenures of the government. It also verifies whether the expenditure is moving along with growth levels in the country

An examination of government spending from 2008-09 to 2023-24 reveals a change in priorities by the government. Defence, security, agriculture, health, social welfare, education, and infrastructure that enhances quality of life are the areas where public expenditures are most frequently spent. During this period there have been considerable challenges for the government finances including as the demonetization and introduction of the GST, over the quintennial period from 2008-09 to 2023-24.

India experienced a significant economic boom and annual growth rate of 7.74 percent during the UPA administration's tenure from 2004 to 2013. The GDP has increased at a rate of 5.57 percent annually during two consecutive period of NDA government. Between 2004 and 2013, the global economy grew at 4 percent, but between 2014 and 2023, it only grew at about 3%. The data indicates that the Indian economy is lagging behind the rest of the globe throughout both the UPA and NDA eras.

Central government expenditure which was about 11 percent of GDP in 2000-2001 increased to 12.4 percent in 2009-2010, but thereafter declined to 10.6 percent in 2015-2016. A major part of the increase after 2008-2009 was seen in the revenue expenditures mainly during the pre-election time when the incumbent government decided to revise the pay scales of government employees. Besides the farm loan waiver and expansion of the rural employment guarantee programme from 200 districts to the whole country inflated the expenditure. Therefore, the present study compares the Especially in the Indian context, the spending noticeably exceeds revenue and majority of the spending is financed by borrowing. Public expenditure in India is driven by various factors, and political factors are one of the most important among them.

2. Related literature:

The linkage between government expenditure and economic development has been a topic of discussion for over a long period of time. Public expenditure influences economic activity, maintains the distribution of income, and achieve overall structural transformation. Especially in the Indian context numerous studies have attempted to draw inferences from the growth implications of expenditure patterns, though the findings have been largely mixed and varied according to political economy factors, major economic events and so on.

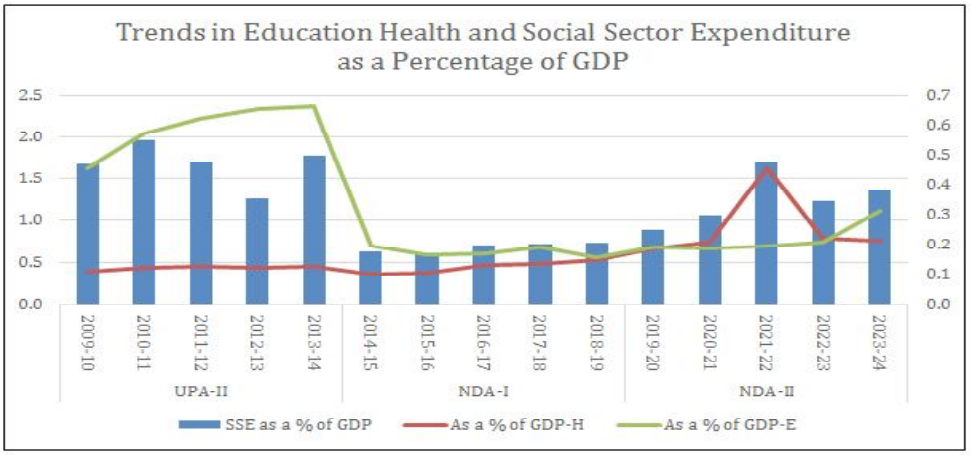
India's growth path has several impediments. According to Sen et al. (2014) sustained rapid economic growth cannot be found in developing countries and India's growth acceleration ended in 2010 and unimproved institutions cause the country's growth pattern to reverse. Persisting corruption is also an important factor hindering growth of the country. Public spending has an important role in economic growth and development of a nation. The impacts of government spending on economic growth largely depends on what the government spends its money on, and how well the institutional mechanism established to manage expenditure works in delivering value for money Favaro and Lahiri (2006). The total public expenditure had a positive long-term effect on GDP Gangal and Gupta (2013). However, empirically there are ambiguous results, and for instance, the relation between the share of total government expenditure in GDP and the growth in per capita real GDP and find negative and significant relationship between the two Devarajan, et al. (1996). An increased central government expenditure in India, aligned with the expanding focus on particularly the social and developmental service Gulati (1961).

There are various factors influence the level of public spending in India. However, according to Muralidharan (2024), the Fundamental problem with India's public finance system is not just the lack of resources, but the inefficacy in how those resources is spent. He highlights the need to shift the policy focus from increasing budgetary allocations to improving the quality of spending. A major portion - almost fifty percent of public spending is to cover the committed expenses such as pensions, salaries and interest payments. These expenses to honour the past commitments are large costs for the government and limit the funds available for essential spending. Especially in the Indian context, the spending noticeably exceeds revenue and majority of the spending is financed by borrowing. Public expenditure in India is driven by various factors, and political factors are one of the most important among them.

3. Descriptive analysis:

The following section presents a detailed analysis of the trends and patterns in social sector expenditure in India over the period 2009-10 to 2023-24. This section shows how successive governments have allocated resources to key areas such as health,

education, and whether priorities of the changing governments are reflected on the budgetary allocations. To understand the political economy of social sector spending especially health and education expenditure, the present compares expenditure patterns under the United Progressive Alliance (UPA) and the first and second National Democratic Alliance (NDA) regimes.



(Source : Union Budget - Ministry of Finance. Government of India)

The data presented reflects trends in Social Sector Expenditure, Education Expenditure, and Health Expenditure from 2009-10 to 2023-24. Overall, all three categories show a general increase over the 15-year period, although with notable fluctuations in some years.

Social Sector Expenditure, which encompasses government spending on welfare-related programs, spending on sectors that directly affect the well-being and quality of life of people, especially the poor and vulnerable sections of society. Official data shows an overall increasing trend from Rs.1, 28,384.10 crores in 2009-10 to Rs.2, 38,202.28 crores in 2023-24. The expenditure peaked in 2021-22 at Rs.2, 54,696.87 crores, reflecting pandemic-related social spending. The substantial increase after 2019-20 is linked to enhanced welfare focus due to COVID-19 and its aftermath. However, there were notable dips in 2012-13 (Rs.1, 15,710 crores) and again during 2014-16 (reaching as low as Rs.66, 137.94 crores in 2014-15).

Education expenditure:

Education Expenditure (general education) has followed a relatively steady upward trajectory with minor fluctuations. It rose from Rs.34, 757.25 crores in 2009-10 to Rs.55, 215.06 crores in 2023-24. The sector saw a consistent rise from 2009-10 to 2013-14, peaking at Rs.64,839.84 crores, then a steep fall in 2014-15 to Rs.20,354.15 crores. Under UPA, the expenditure on education had risen in 2009-10 to 2013-14. In 2014-15, that is the first year of first NDA tenure, the Government drastically reduced its

spending on education. This reduction is attributed to the NDA government's reported plan to make significant cuts to social sector funding in 2014-15 in an effort to lower the fiscal deficit. Moreover, the expenditure on education witnessed a steady increase from 2015-16 to 2018-19. Post-2016, it gradually recovered and continued to rise, crossing Rs.50, 000 crores again by 2023-24.

Furthermore, The **National Education Policy (NEP) 2020** has significantly influenced India's expenditure patterns by prioritizing increased investment in education, especially foundational literacy, digital learning, and vocational training. The strategy plans to boost the country's public spending on education from 4.4 percent of India's GDP to 6 percent. According to the Analysis of Budgeted Expenditure on Education from 2018-19 to 2020-21, the total spending on education as a percentage of GDP has been on the rise, reaching 4.64 for the year 2020-21. Rs. 50,077.95 crore is allocated to the Department of Higher Education. The allocation for the PM Schools for Rising India (PM SHRI) initiative has been raised by Rs 1,450 crore.

During the UPA term significant investments were made in expanding access to education and improving infrastructure. Under Modi, focus has been on improving the quality of education, skill development, additionally digital learning initiatives. Both governments have allocated similar proportions of GDP to education, with the UPA slightly ahead in terms of average expenditure. However, NDA has given emphasize to quality and skill development more prominently.

Health sector expenditure:

Health Expenditure exhibits a strong growth trend, especially in the last five years. From a modest Rs.8, 220.99 crores in 2009-10, it has increased to Rs.37, 231.56 crores by 2023-24. The most significant jump occurred in 2021-22, with expenditure rising to Rs.68, 526.76 crores, nearly double the previous year's spending. This surge clearly depicts the emergency responses to COVID-19 pandemic, including vaccination drives, hospital capacity expansions, and public health programs. Although spending reduced slightly in subsequent years, it has remained much higher than the pre-pandemic level, indicating a lasting shift in public health prioritization.

The Economic Survey specifies that although the pandemic has affected almost all social services, yet the health sector was the worst hit out of all. The overall expenditure in the health care sector in 2021-22 shows an increasing trend compared to the previous years. As mentioned before, significant expenditures were made in healthcare infrastructure as a result of the COVID 19 pandemic, such as increasing the capacity of hospitals, improving testing and treatment facilities, and implementing immunization campaigns. During this time Rs. 2, 23,846 crore was allocated for investment in Health Infrastructure. The government allocated Rs 64,180 for the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) which includes support for rural and urban health and welfare centres, National

Institute for Virology, setting up of national institute for One Health, Health Emergency Operation Centres, mobile hospitals. The ministry allocated Rs. 35,000 crore for COVID 19 Vaccination.

The profound economic downturn following the global pandemic and lockdown significantly disrupted NDA-II regime. Additionally, an economic slowdown already pronounced during NDA-I, exacerbated by the successive policy shocks of demonetization and GST rollout. The UPA era, too, sailed through the challenges of the global financial crisis and the ensuing worldwide recession in 2008-09, representing a significant external shock.

4. Total expenditure as a percentage of GDP:

During the 2009-10 to 2013-14 UPA administration, total spending increased from 13.39 percent to 15.91 percent of GDP. The global financial crisis of 2008 left fiscal stimulus in place throughout the early 2010s. In the early years of UPA II, there were significant fiscal deficits as a result of spending being permitted to increase regardless of revenue. The increase in spending shortly after the global financial crisis of 2008 was thus justified.

The NDA commenced with fiscal consolidation in mind but he COVID-19 pandemic led to emergency spending, pushing the deficit to an unprecedented level. NDA-I (2014-15 to 2018-19) Expenditure percentage of GDP remained stable around 15.75-16.54 percent. During the Modi government, spending on subsidies has increased by almost 58 per cent to Rs 4.03 lakh crore in FY24 from Rs 2.55 lakh crore in FY14.

The fiscal stimulus during COVID-19 under the NDA 2 regime (Modi government's second term) significantly altered India's expenditure patterns, shifting focus toward immediate relief, social protection, and economic revival. The Pradhan Mantri Garib Kalyan Yojana (PMGKY), worth Rs.1.75 lakh crore (0.8 percent of GDP), emphasized direct benefit transfers, free food grains, and employment support, particularly targeting the vulnerable sections of society. This led to a sharp increase in the total spending. Additionally, the introduction of the Atmanirbhar Bharat Abhiyan, with a cumulative package of Rs.20 lakh crore, influenced expenditure patterns by expanding allocations across agriculture, MSMEs, infrastructure, and credit support. With the exception of a pandemic-driven rise in 2020-21, subsidies have been making up a smaller portion of overall spending during the Modi administration's tenure since 2014-15. Subsidies as a percentage of total government spending have since resumed their downward trend. Actually, the expenses of demonetization are calculated to be around Rs 1.27 lakh crore for the economy. This includes a decrease in GDP worth approximately Rs 1.1 lakh crore, considering the average decline in GDP growth of 0.63 percent, the GDP size of 2.5 trillion USD, and an exchange rate of Rs 70. Additionally, there is a cost of Rs 17,000 crore for the government and the RBI to carry out the demonetization procedure in India.

5. Social sector expenditure as a percentage of GDP:

During the UPA administration, the proportion of GDP spent on the social sector remained relatively constant from 2009-10 to 2013-14. In line with the NCMP, the UPA Government has implemented a number of populist measures in the education and health, notably the establishment of the education cess to support the Sarva Shiksha Abhiyan and the mid-day meal program as well as the launch of the National Rural Health Mission. The government set aside Rs 1, 26,312 crore for important flagship initiatives in 2011-2012. Prime Minister's Gramin Sadak Yojana (PMGSY) and Sarva Shiksha Abhiyan (SSA) were the programs with the greatest expenditures.

In the first term of the NDA government, the total share of Social Sector Expenditure as a percentage of GDP fell dramatically. The previous UPA government maintained the percentage between 1.95 percent to 1.25 percent, the NDA administration saw a steep fall in the percentage, without attaining to 1 percent. Despite the fact that the percentage fell from 1.78 percent to 0.60 percent during the first year of the NDA government, a significant decline from the previous UPA administration, the share increased slightly to 0.72 percent in 2018-19 whereas the largest share constituted in the financing, insurance, real estate, & business services. Over the years, the share of social sector spending in total Union government expenditure has stagnated, as a result of change in political parties in power and shift in spending properties of the government.

From 2014-15 to 2018-19, MGNREGA saw a steady rise in fund allocation and expenditure, with allocations increasing from Rs.37, 588 crore to Rs.58, 404 crore. Expenditure followed a similar trend, peaking at Rs.63, 646 crore in 2017-18. In 2015-16 and 2016-17, spending exceeded allocations, highlighting high demand. However, the utilization rate declined in later years, it has faced several limitations that have prevented it from achieving its full potential as a poverty reduction program, to provide livelihood security. These include lack of adequate funds, corruption, administrative delays, and inefficiencies in wage distribution.

The NDA administration's second term, from 2019-20 to 2023-24, saw an increase in the proportion of social sector expenditure to the GDP, but it was less than that of the UPA government. In contrast, since FY20, the government's spending on social services has been growing. The share has increased to 1.3 percent in 2023-24 with the introduction of numerous programs such as the Jal Jeevan Mission (Water Life Mission), the Atal Vayo Abhyuday Yojana (AVYAY), and the SHRESHTA: Residential Education Scheme for High School Students, which offers grants to students from underprivileged backgrounds. As a result, the social sector saw a significant expansion during the NDA II regime.

6. Social sector expenditure as percentage of total expenditure:

The Indian National Congress-led UPA II administration (2009-10 to 2013-14) showed

a great commitment to social welfare by dramatically raising Social Sector Expenditure (SSE). In 2013-14, SSE reached a remarkable height of Rs.1.75 lakh crore, indicating a steady rising trend. Social expenditures were strong as a percentage of GDP, often surpassing 1.7 percent, while this proportion of overall government spending ranged between 12 percent and 14 percent on average. These numbers demonstrate how highly the government prioritizes social expenditures.

The Expenditure that Grew consistently under **UPA II** demonstrating a strong relative commitment to welfare, declined dramatically with the start of **NDA I,** dropped to historic lows during their regime. SSE had a huge decline in 2014-15, decreasing to over ?66,000 crore, which was a considerable decline from the highest levels reported during the previous UPA II administration. Even if developmental demands increased during the following years, this investment was largely unchanged. This significant cut indicates that social welfare programs were given less emphasis.

During the NDA II regime (2019-20 to 2023-24), under the continued leadership of the BJP and Prime Minister Narendra Modi, Social Sector Expenditure (SSE) restored some of this ratio particularly in response to the COVID-19 pandemic. SSE experienced strong growth, peaking at Rs.2.54 lakh crore in 2021-22 a level significantly higher than in previous years. Due to the pressing need to improve livelihoods, enhance healthcare systems, and broaden social safety nets during the pandemic, social spending as a proportion of GDP had a significant recovery in 2021-2022, rising to 1.7 percent. SSE as a percentage of overall government spending also saw a little improvement that year, rising to 6.7 percent. However, regardless of this recovery, these figures still remain well below the levels seen during the UPA II period, when social spending consistently accounted for over 12 percent of total expenditure. This indicates that while the NDA II government increased SSE in response to an extraordinary crisis, the overall budgetary prioritization of the social sector has not returned to earlier highs.

7. Health & education expenditure as a percentage of GDP:

The health expenditure appears to be uniform but doesn't increase to 1 percent. The health sector accounted for a sizable portion of the economy in 2021-22, with 0.45 percent of the GDP during the NDA II administration. According to IMF Annual Article IV, India can boost human capital productivity by investing in education and healthcare. The proportion of education spending as a percentage of GDP, on the other hand, is at its highest in 2013-14 with 0.66% during the UPA administration. The COVID-19 epidemic led to a rise in the percentage of health expenditure in 2021-22 in order to mitigate the pandemic's consequences. Despite the economic difficulties of COVID 19, the government has maintained a consistent level of share when compared to prior years.

In terms of the share of education spending as a percentage of GDP, the UPA administration outperformed the NDA administration, with 0.66 percent of GDP in

2013-14, which was the highest percentage during the UPA era, compared to 0.19 percent and 0.31 percent as the highest in NDA I and II, respectively. In accordance with the recommendations of the 14th Finance Commission, the government has adjusted the sharing pattern of central schemes in crucial sectors, such as secondary and higher education, since 2016-17, with reduced budget allocations and more direct transfers. This would have slightly reduced the overall education expenditure. The percentage of education decreased to 0.19 percent in the first year of the NDA administration and to 0.15 percent in 2018-19. The Modi government's first term saw a significant amount of underfunding.

8. Health and education expenditure as a percentage of social sector expenditure:

The spending in the social sector along with improvements in society and infrastructure, India's economy has expanded in recent years. With the introduction of schemes like the National Vocational Education Qualification Framework (NVWQF), which focused on polytechnics, engineering colleges, and other universities, the proportion of educational spending under the UPA government increased significantly, with 51 percent in 2012-13. Rs 25,555 crore was allotted to RTE, and Rs 3,124 crore was allocated to the Rashtriya Madhyamik Shiksha Abhiyan during the period. The year's allocations are favourable for the education sector. With 30.77 percent as the highest, it decreased during the first NDA period. The subsequent picture is one of collapse, with the percentage falling to 11 percent between 2021 and 2022.

The health sector's proportion remained relatively stable under the UPA government. When considering both the NDA administrations that introduced AB-PMJAY and several other programs, the NDA term had a higher share of up to 20 percent in 2018-19.

The average GDP growth rate under Narendra Modi's leadership has been roughly 6.8 percent year over year since 2014. Even though the economy grew rapidly at first, demonetization, the introduction of the GST, and the COVID-19 pandemic have all had an impact on overall performance. From 2004 to 2014, when Dr. Manmohan Singh was in office, the Indian economy grew at an average annual GDP growth rate of roughly 7.7 percent. Due to increased foreign investments, liberalization policies, and a thriving services sector, the economy expanded strongly during this time. The GDP grew more on average during Manmohan Singh's term than during Modi's. Modi's administration has, nevertheless, concentrated on structural changes meant to build a longer-lasting, more robust economy. The percentage in the first term of the NDA government varied from 15.9 percent to 20.4 percent, while the second term of the Modi government saw an increase in the share in the fiscal year 2021-22, with 26.9 percent being necessary to address the pandemic crisis. However, at the conclusion of

the term, the percentage had dropped significantly to 15.6 percent. India only has 0.9 beds for every 1000 people, according to the National Health Profile, and only 30 percent of these beds are located in rural regions.

9. Does growth move along with public spending in India?

Over time, both GDP and constant spending have generally increased. From Rs.10.96 lakh crore in 2009-10 to Rs.20.47 lakh crore in 2023-24, expenditures rose. In the same time frame, GDP increased from Rs.76.51 lakh crore to Rs.176.50 lakh crore. Even though GDP growth was moderate in 2020-21, there was a significant increase in constant expenditure (Rs.23.33 lakh crore), which was caused by fiscal stimulus and expenditures in the social sector brought on by the epidemic.

A high positive link is seen by a correlation coefficient of 0.903 between constant GDP and constant spending. This implies that steady government spending tends to rise in pace with GDP and vice versa. Although there have been times, like in 2020-21, when expenditure growth exceeded GDP because of exceptional circumstances. The correlation's strength.

10. Conclusion:

The average GDP growth rate during NDA regime has been roughly 6.8 percent year over year since 2014. Although the economy grew rapidly at first, demonetization, the introduction of the GST and the COVID-19 pandemic have all had an impact on overall performance. Between 2004 and 2014, when UPA was in power, the Indian economy grew at an average annual GDP growth rate of almost 7.7 percent. A thriving services sector, more foreign investments, and liberalization measures all contributed to the strong economic growth of this century. Compared to NDA's term, the average GDP grew more during UPA's tenure. Nonetheless, NDA administration has prioritized structural changes meant to build a longer-lasting, more robust economy. Under the UPA, the Plan allocation went up in 2012-13 and by 20143-14, the BJP Govt had reduced the Plan allocation for 2015-16. The cuts are brutal across the board: the flagship Sarva Shiksha Abhiyan has seen a 22.14 percent reduction, the Mid-Day Meal Scheme's budget has been cut by 16.41 percent, the Rashtriya Madhyama Shiksha Abhiyan for secondary education has been reduced by 28.7%, and the Rashtriya Uchhattar Shiksha Abhiyan, which supports state colleges, has been cut by 48 percent. In the case of SSA, MHRD has asked for Rs 50,000 crore in 2015-16 but received only Rs 22,000.

The need for significant investments in healthcare for economic resilience was highlighted by the COVID-19 pandemic. In the COVID-19 era, health spending is seen as crucial for equitable and sustainable economic growth, with a stronger focus on long-term health system strengthening and readiness. While economic downturns

make health spending worse, future sustainable economic growth and health depend on focused policy interventions and an emphasis on creating resilient health systems.

(This article is part of their internship report submitted at GIFT under the guidance of Dr Aswathy Rachel Varughese, Assistant Professor, GIFT).

■

(Navya James is 2nd MA Applied Economics, Christ Deemed to be University, Bangalore, Niranjana Suresh is 2nd MA Economics, University College, Palayam Thiruvananthapuram and Devanandha A S is 3rd BA Analytical Economics, Mar Ivanios College Thiruvananthapuram)

References:

Baranwal Kumar Ritesh & Gopalakrishnan Narayanan Badri (2025). Twin deficits and fiscal prudence: How UPA and NDA steered Indian Economy. Policy Circle

Jha Praveen, Mishra Yamini , Das Subrata & Parvati Pooja (2009). An Assessment of Expenditure Priorities & Resource Mobilisation Efforts of the UPA Government. Centre for Budget and Governance Accountability

Mali Siddappa & Prof. Annigeri.V.B(2023).The Impact of New Economic Policy on Health Expenditure in India : An Analysis of Trends from 1980-2021. International Journal of Creative Research Thoughts (IJCRT)

Mehra Puja(2020). India's economy needs big dose of health spending. Mint

Parmar Arjun (2018). During 3-year tenure, NDA spends twice more than UPA in print, electronic advertising: RTI. The Times of India

PIB Delhi (2021). Summary of the Budget 2021-22. Ministry of Finance

PIB Delhi(2024) Government Social Sector Spending Shows Rising Trend Since 2016, States Economics Survey 2023-24. Ministry of Finance

PIB (2023). Several landmark initiatives taken up under NEP 2020 for the transformation of Education Sector. Ministry of Finance

PIB (2024).Government Social Sector Spending Shows Rising Trend Since 2016, States Economic Survey 2023-24

Rajkumar, Kamal Amit, Dr. Shukla Archana, Sain Mitra &Dr.Kumar Pravin (2018)

Analysis Of Budgeted Expenditure On Education 2014-15 To 2016-17. Ministry of Human Resource Development (Department Of Higher Education) Planning, Monitoring and Statistics Bureau

Seshaiah, S. V., Reddy, T. K., & Sarma, I. R. S. (2018). General Government expenditure and economic growth in India: 1980-81 to 2015-16. *Theoretical Economics Letters, 08(4),* 728-740.

Thakur Pradeep(2013). UPA spend on key welfare plans dips. The Times of India

Tharoor Shashi (2015). How Modi Government Is Undermining Indian Education. NDTV

Varma Subodh(2017). Share of spend in government expenditure, GDP on education falling for 3 years. The Times of India

Vilas, Bhikaji & Khandare, Vilas & Abdul, Sayyad & Maheboob, Aziz. (2024). Trends of public expenditure in India: An empirical analysis.

Appendix:

	Years	SSE as a % of GDP	As a % of GDP-H	As a % of GDP-E
UPA-II	2009-10	1.678	0.107	0.454
	2010-11	1.959	0.122	0.575
	2011-12	1.706	0.126	0.622
	2012-13	1.256	0.122	0.651
	2013-14	1.784	0.123	0.662
NDA-I	2014-15	0.628	0.100	0.193
	2015-16	0.603	0.102	0.164
	2016-17	0.709	0.132	0.169
	2017-18	0.715	0.133	0.190
	2018-19	0.727	0.149	0.155
NDA-II	2019-20	0.888	0.188	0.191
	2020-21	1.069	0.210	0.185
	2021-22	1.696	0.456	0.195
	2022-23	1.237	0.221	0.207
	2023-24	1.350	0.211	0.313

Kerala Economy
Vol.6 No.2 April-June 2025

Energy transition in India: Prospects and challenges

Gayathri Mahesh, Anand NeelaKantan and Anjali S Nambiar

Abstract

India is focusing on a shift towards sustainable development while meeting its growing energy demands. This study examines the transition to renewable energy in India between 2015 and 2024. The analysis reveals that both renewable and non-renewable energy generation have increased but renewable energy has grown at a faster pace. A comparative analysis on Kerala's renewable energy status relative to major Indian states highlights that despite expenditure from the state government there is underutilization of the state's renewable resource potential. Geographical disparities, infrastructural gaps still remain as a key challenge. The research underscores the relevance of public-private partnerships, strategic policy implementation, and region-specific planning to achieve India's ambitious clean energy goals. To meet its sustainable development goals, India should enhance its reliance on renewable energy and should invest more on it.

Key Words: *Energy transition, Sustainable development, Renewable energy, Non-renewable energy*

1. Introduction

The energy sector in India include all industries and infrastructure involved in the production, distribution, and consumption of energy. India is a nation with growing population and in the path of development, hence the nation requires a greater need for the energy sector and its growth. The main key Components of India's Energy Sector are Power Generation, Electricity Transmission and Distribution (T&D), Oil and Natural Gas, Coal Mining and Renewable Energy Development. In Power Generation, Coal is the dominant source, accounting for 50-55% of India's electricity generation. And India is one of the largest producers and consumers of coal global Renewable Energy like solar, wind, hydro-power, biomass, and small hydro are also

sources of electricity generation. Electricity Transmission and Distribution (T&D) is Managed by public and private utilities like Power Grid Corporation of India (transmission), State Electricity Boards (SEBs), and DISCOMs (distribution companies). Oil and Natural Gas public sector companies like ONGC, Indian Oil Corporation, Bharat Petroleum, Hindustan Petroleum of India imports over 80% of its crude oil needs. Coal Mining plays as a key for powering thermal power plants.

As there are many sources of energy there are renewable as well as non-renewable energy, as the world is facing the pressing issue of climate change, air pollution and energy security. According to S&P Global Commodity Insights' Energy and Climate Scenarios, India is expected to reach an upper-middle-income status by the mid-2030s, alongside an urban surge exceeding 40 percent. However, this economic growth's quality depends on tackling high pollution levels. Data from IQAir reveals that 17 of the world's 20 most polluted cities are in India, with coal still dominating the energy mix at 48 percent.

The nation must therefore accelerate Sustainable development by transition to clean energy to mitigate both air pollution and climate change. Sustainable development is defined as "meeting the needs of present without compromising the ability of future generations to meet their own needs" by Brundtland commission. Hence, this transformation from these non-renewable energy to renewable energy is key to attain sustainable form of development.

As the nation identified the importance of sustainable development, India aligns its national development agenda with the United Nations Sustainable Development Goals (SDGs), a set of 17 global goals adopted in 2015 which is aiming to be achieved by 2030. India's approach includes national policies, state action plans, and regular progress monitoring through the NITI Aayog. India undergoes this major energy transformation by moving from a fossil-fuel-heavy system toward a cleaner, more sustainable, and secure energy future. This transition is driven by the need to ensure energy security, reduce carbon emissions, support economic growth, and meet climate commitments. Against this background, this study looks into the transition of India's energy sector with particular reference to Kerala's case with the following broad objectives.

Objectives

- To study the transition of India's energy sector to Renewable Energy for Sustainability from 2015 to 2024
- To understand Kerala's Renewable Energy position in comparison to major Indian states
- To look into the challenges in India's Energy Transition

Literature review

Animesh Pal (2013) in his paper deals with growth, policies and challenges of power sector in India. The development of the power sector has long been associated with economic growth and national development. According to Bhattacharyya (2011), energy availability is directly linked to industrial productivity and the standard of living. Several studies, highlight that achieving large-scale capacity additions, such as the 100,000 MW target set for India's 12th Five Year Plan, requires both massive capital investments and robust policy frameworks. However, public financing requires a greater reliance on private investments and public-private partnerships (World Bank, 2012). This paper states that coal and gas continue to dominate India's energy mix, but the urgency for renewable integration has grown with global climate commitments. The need for efficient project execution and regulatory reforms is emphasized by Rathi (2015), who argues that bureaucratic delays and poor coordination often hinder infrastructure development. Finally, scholars like Ghosh (2016) advocate for a balanced energy portfolio combining fossil fuels, hydro, and renewables, underpinned by cost-effective, sustainable technologies to support inclusive and environmentally responsible growth.

Nagaraju Kaja (2017) found out that developing countries, including India, are witnessing rapid growth in energy demand, driven by economic expansion and population increases. Nagaraju Kaja, in his study highlights the alarming rise in energy usage in India's residential and commercial buildings, with projections showing a more than fourfold increase between 2005 and 2030.The study further points out that despite national policies like the National Mission on Enhanced Energy Efficiency (NMEEE, 2009), the implementation of energy conservation strategies remains weak. Similarly, Bureau of Energy Efficiency (BEE) reports underscore that building energy efficiency is a low-hanging fruit, yet underutilized due to inadequate regulatory mechanisms and lack of incentive structures. Moreover, paper stress the importance of integrating energy-efficient technologies during the design and construction phases of buildings, especially in rapidly urbanizing nations like India. There is a consensus that unless energy conservation becomes an enforceable and incentivized norm, India's energy demand in the building sector will continue to escalate unsustainably.

Chauhan and Indu (2020) extensively studied the relationship between energy consumption and economic growth, especially in the context of developing economies like India. The study highlights the increasing global emphasis on managing energy use efficiently in the face of environmental concerns such as climate change, fossil fuel depletion, and ecological imbalance. Earlier studies, such as those by Stern (2004) and Ozturk (2010), affirm that energy is not only a facilitator of economic activity but also a limiting factor when over-dependence on conventional sources leads to

environmental degradation. In the Indian context, the shift in policy focus towards diversifying the energy mix-particularly through renewables-has been well documented by the Planning Commission (2013) and further supported by empirical work from Bhattacharyya and Timilsina (2010). The study underscores the urgency of transition to an alternative energy sources that minimize environmental and health impacts while supporting inclusive growth.

Stuti Haldar, Ananya Peddibhotla, Amir Bazaz (2023) states that the intersection of energy transitions and social justice has gained significant academic attention as countries like India commit to ambitious clean energy targets. Haldar et al. (2021) provide a critical review of existing literature on energy transitions in India, highlighting the gap in scholarship concerning justice-oriented perspectives. While global energy justice literature-predominantly Western-has extensively examined policy, economics, and technology (Jenkins et al., 2016), it often neglects the socio-political nuances specific to the Global South. In the Indian context, where fossil fuels currently dominate electricity generation, the move toward renewable energy raises concerns about distributive justice, especially for rural and marginalized communities (Sovacool & Dworkin, 2015). Haldar et al argue that unequal access to resources, decision-making processes, and transition benefits risks exacerbating existing inequalities, particularly for vulnerable groups such as women, children, and informal sector workers. Using the triumvirate framework of energy justice-distributive, recognition, and procedural-the authors systematically analyse how justice concerns are embedded within India's energy transition literature. Their work fills a crucial gap by contextualizing justice within local socio-economic realities, thus providing a foundation for more inclusive and equitable energy policies. This aligns with recent calls for "just transitions" that prioritize both climate action and social equity.

Matthew D Leonard, Efstathios E Michaelides, Dimitrios N Michaelides mentions the ways to accomplish the substitution of coal with renewable energy sources, most notably wind and solar. The large-scale substitution of coal with wind and solar significantly shifts the demand for the rest of the power producing units. When the contribution of wind and solar exceeds approximately 25% of the total annual energy produced, there are time periods within a year when excess electricity is produced that must be wasted/dissipated. This presents a severe constraint for the substitution of coal-generated electricity with renewables. Extensive calculations are made for: (a) the solar and wind rated power that are necessary for the substitution of part or all the power currently supplied by a coal-fired power plant; and (b) the storage requirements for this substitution. The calculations also reveal that the substitution of coal with the renewable energy sources may be optimized for minimum energy storage capacity.

Methodology

This study adopts a mixed-methods approach, combining quantitative analysis and qualitative analysis.The study is based on secondary data sources collected from;

- Government reports: MNRE, NITI Aayog, Ministry of Power, MOSPI
- International agencies: IEA
- Academic journals: Kerala Economy (GIFT).

The data collected were tabulated and analysed by using growth rate and ratio analysis. In the following section the transition of India's energy sector is discussed.

Transition of India's energy sector to renewable energy

With the world's largest population, India is experiencing a rapid surge in energy consumption and demand. The nation's economic progress is closely tied to the energy sector, as India stands as the third-largest producer and consumer of energy globally. India's rapid urbanization and economic growth have led to a sharp rise in energy demand. Meeting this increasing need-essential for powering industries, transportation, and households-comes with its own set of challenges. India is committed to ensuring accessible and dependable energy across all sectors while prioritizing green energy initiatives and sustainable development. There are substantial financial allocations for achieving renewable energy targets, reducing carbon emissions, and enhancing energy security.

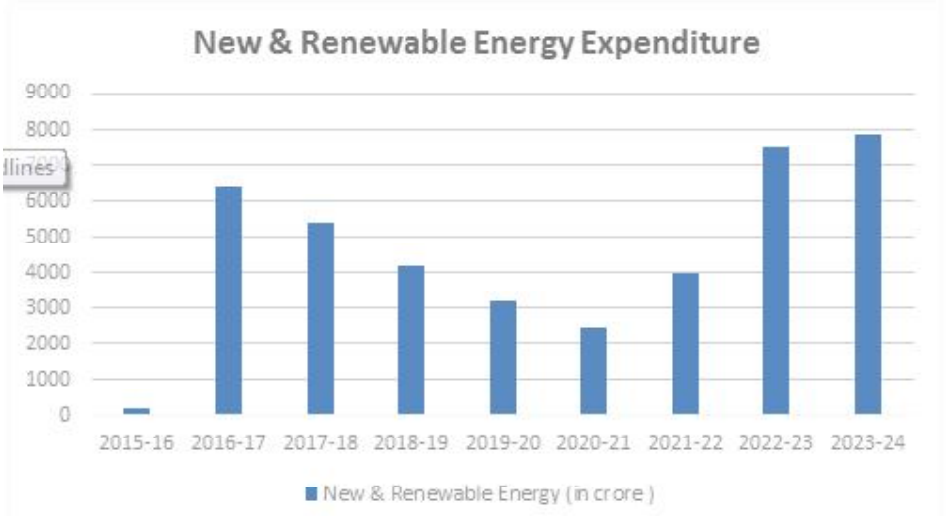
The New and Renewable Energy sector in India has been steadily evolving since 1982, following the establishment of the Department of Non-conventional Energy Sources (DNES) under the Ministry of Energy. With the transition from the Five-Year Plans to the NITI Aayog framework, government spending on renewable energy witnessed a significant rise. In 2015-2016, the expenditure stood at ?165.44 crore. This expenditure recorded a sharp increase in 2016-2017, but in the subsequent years, spending gradually declined, dropping from ?6414.46 crore to ?2459.13 crore by 2020-2021 (Table 1.1). This reduction was largely attributed to the economic impact of the global COVID-19 pandemic, often referred to as the "Great Lockdown," which also strained India's economy. However, from 2021-2022 to 2023-2024, the government's expenditure rebounded, growing at a rate of 40.73%. Over the period from 2015 to 2024, the compound annual growth rate (CAGR) of government spending on new and renewable energy has been calculated at 50.07%.

Table 1.1 Energy Expenditure of Union Government (in crore)

Year	Energy	New & Renewable Energy
2015-16	37469.27	165.44
2016-17	43441.09	6414.46
2017-18	44203.94	5392.25
2018-19	44165.87	4169.63
2019-20	60428.51	3200.82
2020-21	52480.96	2459.13
2021-22	26911.32	3972.66
2022-23	47954.51	7504.12
2023-24	39716.94	7869.10

Source: Union Budget,Government of India, various years (https:// www.indiabudget.gov.in/)

Figure 1.1



Renewable and non-renewable energies are still demanded and generated by the nation. As our economy is growing day by day the need for energy is really high. The complete shift of energy generation to renewable energy is in a growing stage. When we analyses the growth of renewable energy generation, it is increasing yearly. And the generation of non-renewable energy is also increasing yearly. But this growth is increasing at a decreasing rate. Which means comparatively the growth rate of renewable energy is having an increasing trend than that of non-renewable energy.

From 2015 to 2024, renewable energy generation in India increased from 187.16 Billion Units (BU) to 359.89 BU, which is nearly doubled. Between 2015-2016 and 2018 -2019, the growth rate of renewable energy showed an increasing trend (Figure 1.1). The growth rate declined considerably during the lockdown due to COVID -19. After the pandemic the growth rate has reached to its positive trend.

From 2015 to 2024, non-renewable energy generation in India increased from 981.2 BU to 1374.23 BU, representing a growth of less than double over the period. Between 2015-2016 and 2018-2019, the growth rate of non-renewable energy showed a declining trend. This was followed by a negative growth during 2019-2020 and 2020-2021, with rates of -1.87% and -1.25%, respectively (Table 1.2). After this period, the growth rate began to rise slightly. Overall, the total growth in non-renewable energy generation during this time frame stands at 40.05%. Here coal is still the major source of energy in India used for electricity and industry.

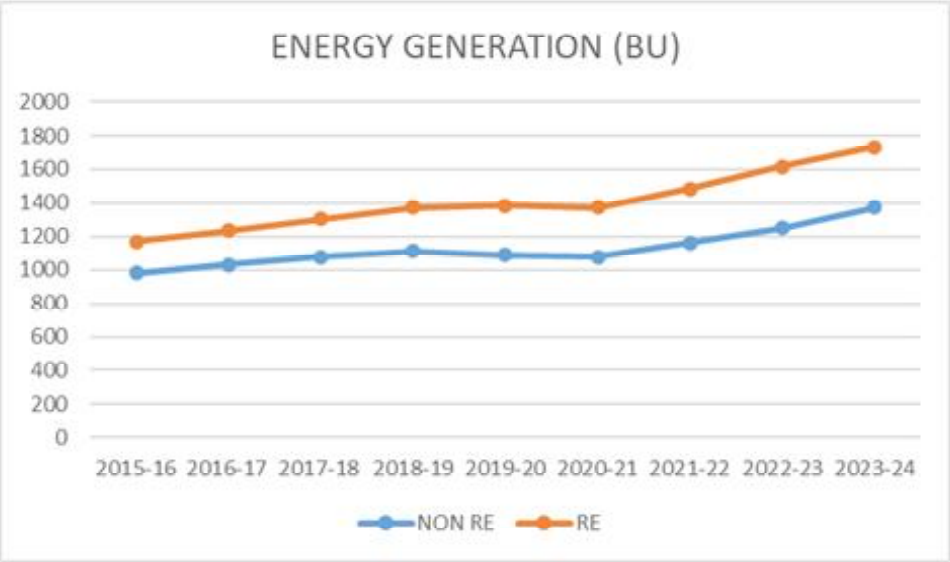
Table 1.2 Renewable and non-renewable energy generation (in Billion Units)

Year	Non-RE	Growth Rate	RE	Growth Rate
2015-16	981.2		187.16	
2016-17	1032.14	5.19	203.93	8.96
2017-18	1075.4	4.19	227.94	11.77
2018-19	1110.03	3.22	261.65	14.79
2019-20	1089.22	-1.87	294.11	12.40
2020-21	1075.54	-1.26	297.55	1.17
2021-22	1161.82	8.02	322.54	8.40
2022-23	1251.98	7.76	365.66	13.37
2023-24	1374.23	9.76	359.89	-1.58

Source-Ministry of new and renewable energy (MNRE)

**RE - Renewable energy*

Figure 1.2



From the analysis, we come to the conclusion that the renewable as well as the non-renewable energy expenditure are increasing yearly. Along with this increase there is also a growth in the energy generation. But the renewable energy is having an average growth rate of 9.66, which is much greater than the average growth rate 4.25 per cent of non-renewable energy. Hence the nation is in the phase of drastic energy transformation.

The Government of India has put in place a wide range of subsidies and incentives to encourage the transition towards cleaner energy. These measures aim to attract investment, reduce costs, and make renewable energy more accessible across the country. For instance, up to 100% Foreign Direct Investment (FDI) is permitted under the automatic route for renewable energy projects. To make projects more financially viable developers benefit from a waiver of inter-state transmission charges for solar and wind power projects commissioned by June 2025, The government has also set clear Renewable Purchase Obligations (RPOs) to ensure a consistent demand for clean energy. Along with this large-scale Ultra Mega Renewable Energy Parks have been established to provide ready land and transmission infrastructure to developers. Schemes like PM-KUSUM, Solar Rooftop Phase II, and the CPSU Scheme Phase II support both decentralized and grid-connected installations are also introduced. The MNRE provides direct financial incentives for green Hydrogen production through

National Green Hydrogen Mission. To ensure that renewable power can be efficiently evacuated, the Green Energy Corridor project is expanding transmission lines and substations. Moreover, Research and innovation are promoted through the Renewable Energy Research and Technology Development Programme, which offers substantial funding support to research institutions, start-ups, and private companies. Together, these initiatives reflect India's strong commitment to making renewable energy a cornerstone of its future energy mix.

Kerala's renewable energy position _ An interstate comparison

India being a country with diverse geographical conditions is the third largest country in energy generation. Spanning from the sun-drenched deserts of Rajasthan and the wind-rich coastlines of Tamil Nadu and Gujarat, to the hydropower potential of the Himalayan states and the coal-rich eastern belt of Jharkhand and Chhattisgarh, each region offers distinct natural endowments. This geographical and resource diversity is the reason for inter-state differences in energy generation capacities. Some states have started giving focus to renewable energy and few other states are still reliant on fossil fuels. Hence analysing the state wise potential is essential.

While comparing states on the basis of energy generation during 2023-24, Rajasthan, Gujarat, Karnataka, Himachal Pradesh, and Tamil Nadu are the top five states in energy generation during 2023-24. When we consider these states, the percentage of energy expenditure to the states total expenditure 2025-26 (estimated) is between 0.0001% and 1.509%. The state with greater share is Rajasthan, they spend 1.509% of total expenditure for renewable energy (Table 2.1). Other states like Karnataka, Himachal Pradesh, and Tamil Nadu are only contributing less than that of Kerala government renewable energy expenditure. Here Kerala spends its 0.009% of total expenditure for renewable energy, which is greater percentage share than many leading states.

Table 2.1 New and renewable energy as a percentage of total state expenditure 2025-26 (in crore)

States	New and renewable energy expenditure (crore)	Total expenditure	Share in total expenditure (%)
Rajasthan	5728.37	3,79,617	1.509
Gujarat	842.74	3,32,150	0.254
Karnataka	15	3,83,075	0.004
Himachal Pradesh	3.2	52,709	0.006
Tamil Nadu	0.31	4,39,293	0.0001
Kerala	19.47	1,98,582	0.009

Source- State budget documents, 2025-26, various states

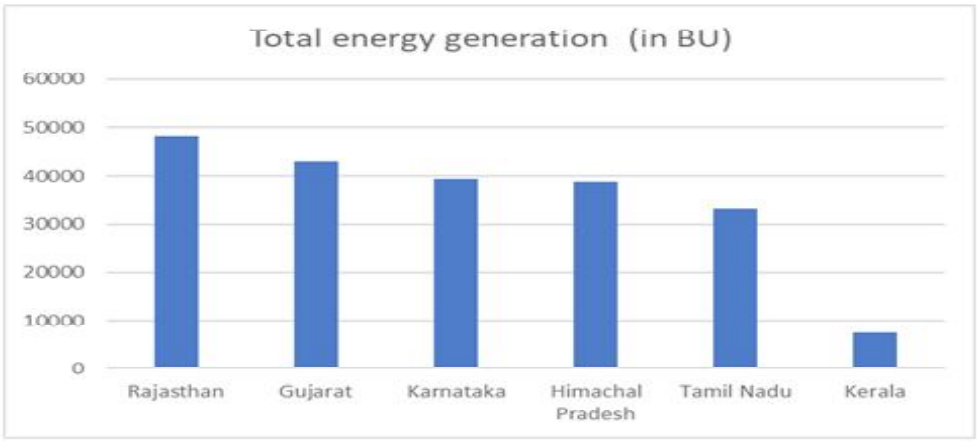
While comparing states on the basis of energy generation during 2023-24, Rajasthan, Gujarat, Karnataka, Himachal Pradesh, and Tamil Nadu are the top five states in energy generation during 2023-24. Rajasthan lies in the top with a total energy generation of 48164.86 BU with a major share in solar power (38365.21 BU). While Kerala's total energy generation is 7359.96 BU with a major share from large hydro power (5155.72 BU). In the case of small hydro power, Himachal Pradesh lie on the top with 2526.98 BU and Kerala is having 716.31BU of small hydro power (Table 2.2). Gujarat is leading in the case of wind power with 24794.50 BU and Kerala is only generating 214.53 BU of wind energy. Karnataka leads in the case of bio power generating 2801.51BU. While Kerala is generating 78.12BU only. In the case of solar power, Rajasthan leads with 38365.21 BU while Kerala is generating only 1195.28BU. Himachal Pradesh is leading in large hydro power with 36365.85BU while Kerala is generating 5155.72BU.

Table 2.2 State wise energy generation during 2023 - 2024 (in Billion Units)

States /UTs	Small Hydro Power	Wind Power	Bio Power	Solar Power	Large Hydro	Total
Rajasthan	7.45	8390.67	387.55	38365.21	1013.97	48164.86
Gujarat	217.68	24794.5	2.13	13468.91	4556.33	43039.55
Karnataka	1370.76	10950.2	2801.51	15404.09	8973.17	39499.72
Himachal Pradesh	2526.98	…	…	59.54	36365.85	38952.37
Tamil Nadu	206	16908.08	751.75	11737.48	3563.28	33166.59
Kerala	716.31	214.53	78.12	1195.28	5155.72	7359.96

Source- Renewable energy statistics 2023-24 (www.mnre.gov.in)

Figure 2.1



This data shows there is no direct correlation between the government expenditure and renewable energy generation. But the main factor which accelerate this growth in generation is the public privet partnership. States with largest energy generation like Rajasthan collaborated with Tata Powers Investment, UAE partnership and Central Public Sector Enterprises have encompassed significant investments and capacity additions across various renewable energy domains. Most of the states promote PPP partnership for investments and development in renewable energy.

Kerala's topography is having a diverse nature. And these diversities provide the state a greater capacity to achieve renewable energy than installed capacity in energy generation. Kerala's major source of renewable energy is hydro. But the state lacks to reach the resource potential of 3673 MW. And only reached Hydro energy installed capacity of 1964.15 MW. The second largest source, small hydro's resource potential is 647.15 but its installed capacity is only 276.52 MW. Kerala is having a high resource potential in solar energy due to its geographical location. But we have only utilised 25.19% of solar energy. Like the top five states Kerala also need to spend on renewable energy generation based on its topographical potential. The data proves there is not much correlation between the state's expenditure and generation of renewable energy, as Public privet partnership and topographical potential of states plays a major role in energy generation.

The analysis of state-wise energy generation for 2023-24 highlights the significant disparities across Indian states, shaped by their unique geographical features and natural resource availability. States like Rajasthan, Gujarat, Karnataka, Himachal Pradesh, and Tamil Nadu have effectively harnessed their renewable energy potential, emerging as leaders in energy generation through focused investment and infrastructure development. In contrast, Kerala, despite its diverse topography and considerable renewable resource potential-especially in hydro and solar energy-lags behind in fully realizing this capacity.

To move forward, Kerala must address the gaps in resource utilization through robust policy implementation, financial incentives, and technological adoption. Doing so will not only enhance the state's energy security and sustainability but also contribute meaningfully to India's broader renewable energy goals.

Concluding observations

India's energy sector is undergoing a significant transformation driven by rising energy demands, environmental concerns, and a global push towards sustainability. While the country continues to rely on non-renewable sources like coal, the shift to renewable energy is gaining momentum. The analysis reveals that energy expenditure is increasing on both renewable and non-renewable energy. Along with it, total energy generation is also increasing. Evidence shows that the proportion of renewable energy is increasing more rapidly than non-renewable energy showing a drastic shift towards cleaner energies. All the states are improving their renewable energy and they are focusing on their topographical specialists to generate this renewable energy. When we analyse

the top states, they are only contributing a less amount for these renewable energy generation but still they are the greatest renewable energy producers. Here we came to a conclusion that there is no correlation between the state Governments expenditure and generation of renewable energy. Public private partnership plays a crucial role in bridging this expenditure gap which can't be met by State Government. Kerala is contributing a greater share of expenditure for renewable energy but still the state has a long way to go. And the data have also proven that the states like Rajasthan, a state with large deserts mainly focused on the solar energy, Gujarat dominates wind energy, Karnataka is ahead in bio-energy and Himachal Pradesh tops in both large and small hydro energy. All these top five states are mainly spending on renewable energy, which is supported by their topography.

Policy suggestions

India should continue its focus on renewable energy to meet its target of net zero emissions in the coming years. To unlock the full potential of sub national governments like Kerala should focus more on the renewable energy sector. Despite notable expenditure on renewable initiatives, Kerala and similar states still contribute marginally to actual generation capacity. Bridging this gap requires a multifaceted strategy.

First, fostering Public-Private Partnerships (PPP) can accelerate the development and implementation of large-scale solar and hydro projects by leveraging both public funding and private sector efficiency. Additionally, community engagement and awareness campaigns are essential to promote decentralized renewable solutions such as rooftop solar installations, micro-hydro systems, and biomass energy. Investments in modern infrastructure, such as smart grids and advanced transmission systems, will ensure better integration and management of variable renewable energy sources. Furthermore, this create employment opportunities but also ensure the long-term sustainability and maintenance of renewable energy assets.

By aligning policy efforts with these strategic suggestions, states like Kerala can significantly enhance their renewable energy generation capabilities. Understanding regional trends in generation and expenditure can guide policymakers to make data-driven decisions, ensuring that India remains on a steadfast path toward a sustainable and globally competitive clean energy future.

(This article is part of their internship report submitted at GIFT under the guidance of Smt Anitha Kumary, Visiting Faculty, GIFT).

■

(Gayathri Mahesh is PG Scholar, Christ college, Irigalakuda (Autonomous), Calicut University, Anand NeelaKantan is PG Scholar, Dr. Janaki Ammal Campus Kannur university and Anjali S Nambiar is PG Scholar, University college, Thiruvananthapuram, Kerala University)

References

Chauhan, I. (2020). Energy consumption and sustainable economic growth in India: A causal relationship (Doctoral dissertation, Kurukshetra University).

Gujarat Budget. (2025-26). State budget documents. https://financedepartment.gujarat.gov.in/budget.html

Haldar, S., Peddibhotla, A., & Bazaz, A. (2023). Analysing intersections of justice with energy transitions in India: A systematic literature review. Energy Research & Social Science, 99, 103064. https://doi.org/10.1016/j.erss.2023.103064

Himachal Pradesh Budget. (2025-26). Budget documents. https://himachal.nic.in/index1.php?lang=1&dpt_id=1&level=0&linkid=5265&lid=20721

Kaja, N. (2017). An overview of energy sector in India. International Journal of Science and Research (IJSR). School of Planning and Architecture, Vijayawada.

Karnataka Budget. (2025-26). State budget volumes 2025-26. https://finance.karnataka.gov.in/184/budget-volumes-2025-26/en

Kerala Budget. (2025-26). Budget documents. https://finance.kerala.gov.in/bdgtDcs.jsp

Leonard, M. D., Michaelides, E. E., & Michaelides, D. N. (2018). Substitution of coal power plants with renewable energy sources-Shift of the power demand and energy storage. Energy Conversion and Management, 164, 27-35. https://doi.org/10.1016/j.enconman.2018.02.017

Ministry of New and Renewable Energy. (2024). Renewable energy statistics 2023-24.

Kerala Economy
Vol.6 No.2 April-June 2025

Public pensions in an ageing state: Is sustainability at risk?

P S Renjith and Ashkar K

Abstract

This paper critically examines Kerala's public pension system in the context of its advanced demographic transition and rising fiscal pressures. With the highest share of elderly population among Indian states and one of the most generous social security pension framework, Kerala exemplifies both the achievements and challenges of welfare-centric ageing support. The study maps the evolution of statutory and social security pensions, highlighting the state's expansive coverage, including over 34 lakh beneficiaries across general and elderly schemes. Further, using recent data it explores trends in pension expenditure (civil and social security pension), including its substantial share of total revenue outlays (nearly 17%). The analysis underscores how Kerala's inclusive but fiscally intensive model, though socially progressive, raises critical concerns regarding long-term sustainability. It calls for calibrated reforms that preserve equity while enhancing efficiency and sound fiscal policy in an ageing society.

Key Words: *Pension system, Population Ageing, Fiscal Stance.*

1. Introduction

Pension reform has become a pressing concern in many developing countries, including India, due to rising life expectancy and population ageing, changing economic conditions, and institutional challenges. These are further complicated by an increasing number of retirees compared to contributors, debates over shifting from pay-as-you-go to contributory systems, concurrent administration in federal structures, and the growing fiscal strain of pension obligations. As countries develop, they face difficult policy choices in crafting pension systems that balance fiscal sustainability with social equity.. They Barr and Diamond (2010) emphasize that successful pension reform

must align economic feasibility, fiscal stance with social protection goals. Drawing from international experience- ranging from state-driven socialist models to market-oriented Anglo-American systems- the World Bank's (1994) three-pillar model, comprising public, occupational, and voluntary pension schemes, offers a structured framework to diversify pension sources while addressing long-term sustainability.

India's pension system has evolved over more than a century, from the colonial-era Royal Commission on Civil Establishments in 1881 and statutory provisions under the Government of India Acts of 1919 and 1935, to a broad-based architecture shaped by constitutional and developmental mandates. While initially limited to civil servants, pension coverage gradually expanded to the wider public sector and vulnerable populations. Anchored in the Directive Principles of State Policy, particularly Article 41 of the Indian Constitution, and falling under the concurrent jurisdiction of central and state governments, welfare pensions have become an essential pillar of India's social protection framework. Notably, several states pioneered old-age assistance schemes even before national programmes took shape. Today, India's old-age income security rests on a three-pillar system: statutory pensions for organised-sector employees, voluntary savings for informal and self-employed workers, and targeted social pensions for the poor and elderly. Recent reforms, including widespread adoption of the contributory National Pension System (NPS) by most states (except West Bengal and Tamil Nadu), underscore the dynamic interplay of political intent and demographic pressures.

Of all major Indian states, the evolution of the pension system has become particularly critical in the case of Kerala, owing to its distinct demographic trajectory and ideological stance on pension reform, rooted in the broader Kerala Development Model. According to Census 2011 and the Report of the Technical Group on Population Projections (2019), Kerala has the highest proportion of individuals aged 60 and above, coupled with the highest life expectancy in the country. Projections indicate that by 2031, the elderly will comprise 20.9% of Kerala's population, the highest among all states. While these demographic indicators are often viewed as hallmarks of human development (Zachariah & Rajan, 2011), they also pose serious concerns for the long-term sustainability of the state's pension architecture. The increasing share of the elderly and rising longevity are set to place mounting fiscal stress on both statutory pensions and social security schemes, raising urgent questions about how Kerala will balance its commitment to welfare with fiscal prudence.

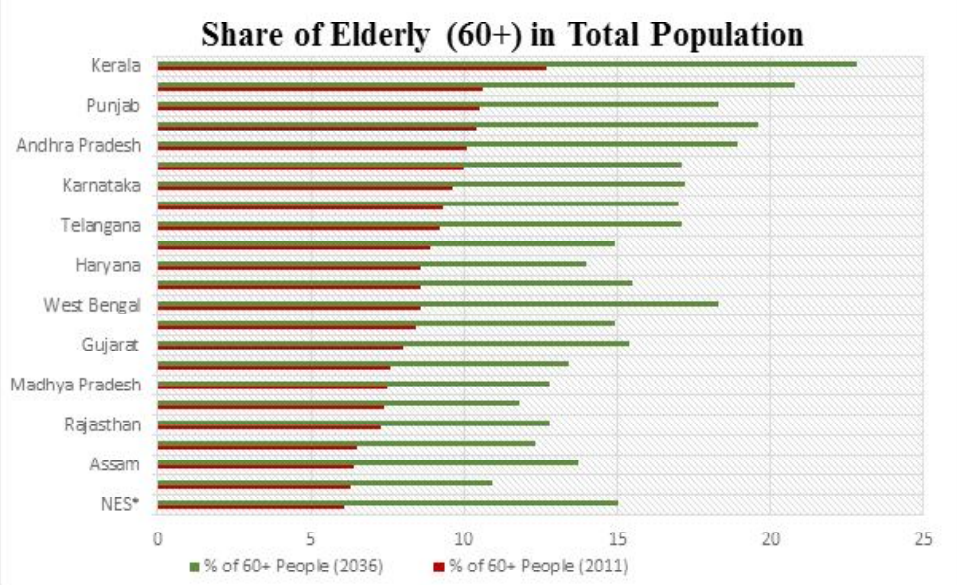
Against this backdrop, the present study seeks to critically examine Kerala's demographic transition, the status and trends of elderly pension schemes, and the fiscal implications of a publicly funded pension system. It also aims to explore the emerging challenges to the fiscal sustainability of these programmes in the context of the state's evolving demographic realities. The paper is organized into the following subsections: an overview of Kerala's ageing profile, an analysis of pension schemes

and their expenditure trends, a discussion on fiscal liabilities and sustainability concerns, and finally, a policy-oriented evaluation of the system's long-term viability.

2. Kerala's demographic turn: The rising challenge of population ageing

According to the 2011 Census, India's population was 121.08 crore, projected to reach 147.8 crore by 2031 (Technical Group on Population Projections, 2019). Kerala already stood out in 2011, with more than 12% of its population aged 60 and above, whereas most other major states barring Punjab (11.2%) and Andhra Pradesh (10.6%) remained below the 10% threshold. By 2031, Kerala's elderly population share is expected to rise sharply to nearly 24%, far ahead of states like Punjab (18.8%), West Bengal (17.5%), and Andhra Pradesh (18.3%), which hover in the mid-to-high teens. In contrast, states such as Madhya Pradesh (13.5%), Rajasthan (12.7%), and the North-Eastern States (11.5%) are projected to remain well behind, highlighting the starkly uneven demographic transition unfolding across India's federal landscape. Figure 1 clearly illustrates this divergence, emphasizing Kerala's early and steep ageing trajectory relative to other Indian states.

Figure 1: Share of elderly (60+) in total population across major Indian states



Source: Population Census 2011 Report of the Technical Group on Population Projections November 2019, Population Projections for India, and States 2011-

**NES-North Eastern States*

Kerala's steep ageing trajectory, set to have one in four residents aged over 60 by 2031, presents pressing social and fiscal challenges. As the working-age population contracts, the demand for stable old-age income, healthcare, and elderly-centric services is set to rise sharply. Addressing these needs will require Kerala to recalibrate its social protection architecture. This calls for timely, state-specific pension reforms, enhanced resource mobilisation, and closer integration of pension systems with broader welfare and health frameworks to ensure elderly well-being and avert long-term social pressures.

3. Trends and patterns of public pension system for elderly in Kerala

India's old-age income security system includes statutory pensions for organized sector employees, voluntary schemes for the self-employed and unorganized sector, and targeted social assistance for the poor. This study focuses on the first and third types, statutory public pensions (excluding provident fund and gratuity) and welfare pensions for economically vulnerable groups, which together form a major component of central and state pension expenditures.

India's statutory pensions, falling under Pillar II of the World Bank's framework, were historically dominated by the Old Pension Scheme (OPS), an unfunded model that raised intergenerational equity concerns (Aiyar, 2022; Rajaraman, 2006). A major shift occurred in 2004 with the introduction of the National Pension System (NPS), a market-linked, contributory scheme aimed at reducing long-term fiscal liabilities. While all government employees were earlier entitled to defined pensions under OPS, post-2004 recruits are now covered under NPS. Though primarily a fiscal reform, state-level decisions to adopt or retain pension schemes remain politically driven. All states except West Bengal and Tamil Nadu have adopted the NPS, with Kerala being the last to join in 2013.

In the context of India's shift toward contributory pension models, Kerala presents a distinctive case. As of 2023, Kerala had 7.42 lakh subscribers under the National Pension System (NPS), placing it in the mid-range among Indian states. However, its enrolment under the Atal Pension Yojana (APY), a contributory scheme targeting informal sector workers, is notably low, with just 1.43 lakh subscribers, far below states like Uttar Pradesh (19.98 lakh) or Bihar (9.72 lakh). This subdued participation in APY reflects Kerala's preference for state-funded, welfare-oriented pension schemes and the limited traction of voluntary contributory models, despite a large informal workforce. Given Kerala's rapidly ageing population, the relatively modest adoption of APY and delayed NPS entry (adopted only in 2013) raise important questions about the long-term sustainability of its pension model, especially in light of fiscal pressures and demographic realities.

On the other hand, India's social security pension system plays a crucial role in safeguarding the economic security and dignity of the elderly, disabled, and

economically vulnerable. Rooted in the Directive Principles of State Policy, particularly Article 41 of the Constitution, it obligates the state to provide public assistance within its financial capacity. As a concurrent subject under List III of the Seventh Schedule, welfare pensions are administered jointly by the central and state governments. Historically, state governments-initiated welfare pensions, initially targeting the elderly and gradually expanding to include other vulnerable groups. In the 1990s, the central government sought to harmonize efforts through the National Social Assistance Programme (NSAP), which currently includes the Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), and Indira Gandhi National Disability Pension Scheme (IGNDPS). Today, all states and union territories implement these schemes either through NSAP-aligned frameworks, particularly for elderly or independent state-run schemes, leading to significant variation in coverage, benefits, and administration. These differences are shaped not just by state-level fiscal capacity, but also by political ideology and leadership commitment to social welfare (Dey, 2021).

Kerala currently implements two major elderly-specific social security pension schemes: the centrally supported IGNOAPS under NSAP, and the fully state-funded Agricultural Labour Pension Scheme (APL). In addition, the state offers category-specific pensions for vulnerable groups such as circus artists and members of the Vishwakarma community. Kerala also operates around 44 Welfare Boards catering to informal sector workers, with varied funding structures, some rely entirely on government grants, others on a combination of own revenues and state support, and a few are self-financed. As of now, almost all social security pensions are uniformly set at Rs.1,600 per month. For IGNOAPS, the central government contributes Rs.200 (Rs.500 for beneficiaries aged 80 and above), with the state topping up the remainder to meet the standard amount.

This financial support reflects in Kerala's extensive reach (See Table 1): as of 2023-24, the state had 4.58 lakh beneficiaries under IGNOAPS (funded by the central government) and a remarkable 27.5 lakh beneficiaries under additional state-funded old age pensions, one of the highest in the country. Notably, the coverage of another major elderly-specific scheme, the Agricultural Labour Pension (ALP), stands at 3.08 lakh beneficiaries, reinforcing Kerala's multi-tiered approach to elderly protection through both general and occupation-specific schemes. Unlike many states that adopt Below Poverty Line (BPL) criteria for pension eligibility, Kerala applies a more inclusive annual income limit of Rs.1,00,000, enabling wider coverage. This approach, while fiscally demanding, aligns with the state's welfare-oriented governance model and acknowledges the rising costs of living and healthcare in old age. In contrast, several other states offer lower pension amounts or limited coverage. For instance, Goa and Nagaland provide no state top-up to the central share, while even larger states like Uttar Pradesh report relatively lower additional beneficiaries (10.7 lakh) compared

to Kerala, despite having a significantly larger population. This suggests Kerala's proactive and inclusive social protection model, even amid fiscal pressures, remains unmatched in its scale and depth of support for the elderly.

Table IV: State-UT-wise number beneficiaries under IGNOAPS(NSAP) 2023-24

Sl. No	States/UTs	State/UT-wise number IGNOAPS (NSAP) beneficiaries	State/UT-wise additional old age Pension beneficiaries
1	Andhra Pradesh	663736	678736
2	Arunachal Pradesh	5893	48722
3	Assam	695997	1271315
4	Bihar	3157256	3915991
5	Chhattisgarh	644429	653006
6	Goa	7308	78112
7	Gujarat	620548	148817
8	Haryana	259865	1527417
9	Himachal Pradesh	93178	430085
10	Jharkhand	985094	1435922
11	Karnataka	899422	3982109
12	Kerala	458813	2750224
13	Madhya Pradesh	1575079	841470
14	Maharashtra	1122920	2680443
15	Odisha	1418631	1591369
16	Punjab	112955	2126951
17	Rajasthan	823972	4821144
18	Tamil Nadu	1282504	263975
19	Telangana	480315	1170705
20	Uttar Pradesh	4722613	1078133
21	Uttarakhand	204557	288982
22	West Bengal	1281159	1689657
23	UT's and others	596730	1191845
	TOTAL	**22130687**	**34665130**

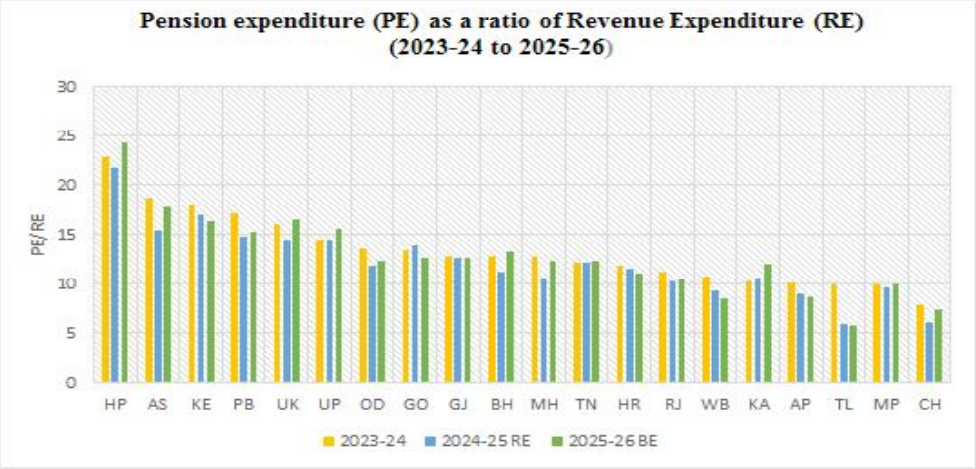
Source: - Lok Sabha Unstarred Question No. 1159 Answered On 11/02/2025
https://sansad.in/getFile/loksabhaquestions/annex/184/AU1159_RpZosw.pdf?source=pqals

4. Fiscal implications of civil and social security pension schemes in Kerala

Kerala continues to grapple with one of the highest pension burdens among Indian states, particularly from statutory pension liabilities. As shown in Figure 2, Kerala's pension expenditure as a share of total revenue expenditure was 17.3% in 2023-24, 16.4% in 2024-25 (RE), and is budgeted at 16.9% in 2025-26 (BE). While this marks a marginal decline, the state still ranks third-highest after Himachal Pradesh (24.2%) and Assam (18.7%), and significantly above the average for other major states such as Maharashtra (13.2%), Tamil Nadu (12.6%), and Madhya Pradesh (10%) (Budget Documents, 2025-26; RBI, 2023).

This comparative positioning highlights Kerala's structural fiscal vulnerability, where legacy obligations from the Old Pension Scheme (OPS) and a relatively late adoption of the National Pension System (NPS) (in 2013) continue to exert pressure on its revenue spending (PFRDA, 2023). Importantly, the data excludes social security pensions for elderly, which, if included, would push Kerala's overall pension commitments even higher especially given its expansive welfare framework that covers nearly 30 lakh elderly through various schemes. Unlike several other states that have achieved greater pension rationalisation or earlier transitions to the NPS (e.g., Himachal Pradesh in 2003, Gujarat in 2005), Kerala's demographic maturity and ideological resistance to full pension marketisation have compounded its long-term fiscal stress (CAG, 2023). The state's case underscores the urgency of implementing state-specific pension reforms that can address both sustainability and equity in an ageing society.

Figure 2: Pension expenditure as a % total revenue expenditure

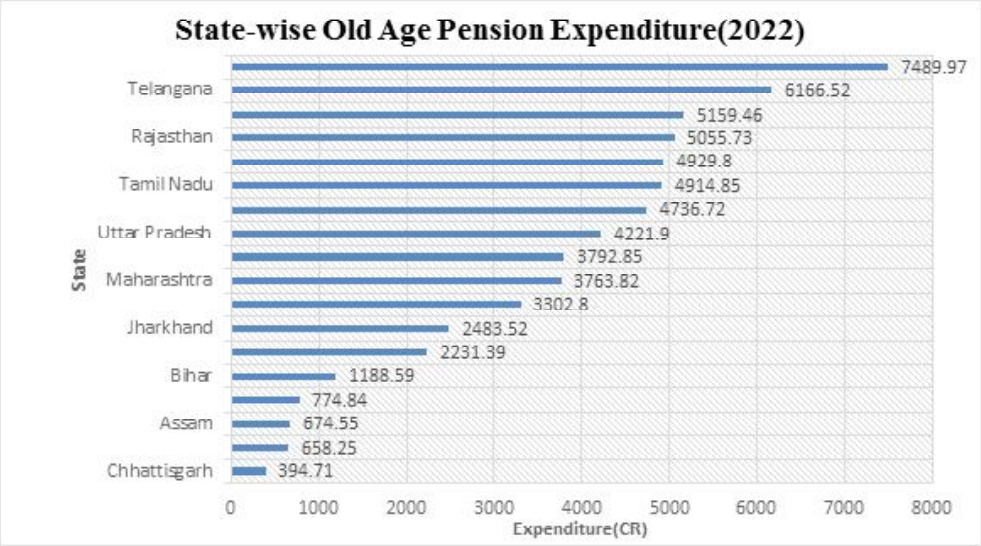


Source: Budget 2025-26, respective states

In the other side of coin, the rising share of elderly population poses a significant concern for state finances, primarily due to the growing commitment to providing social security pensions for senior citizens. Additionally, the increase in life expectancy further intensifies the financial burden associated with civil pension expenditure. Civil pension expenditure in Kerala has exhibited a steady upward trend since the 1990s. While it accounted for around 11-13% of the state's revenue expenditure in the early 1990s, it has consistently remained between 15% and 20% in recent years, peaking near 20% in 2007, 2011, and 2018. The latest data 2023-24 to 2025-26 reveal a persistently high pension expenditure, consistently ranging between 15% and 18%. This rising trajectory of pension expenditure to total revenue expenditure reflecting the compounded fiscal impact of demographic ageing, increasing life expectancy, and pension commitments. These high pension outlays significantly constrain fiscal space for capital investment and welfare expenditure, particularly in states with limited revenue buoyancy.

Figure III shows that Kerala spent roughly Rs.4,930 crore on old-age social-security pensions in 2022, the fifth-highest outlay among Indian states behind only Andhra Pradesh, Telangana, Haryana, and Rajasthan. What makes Kerala's figure striking is its population base: with barely 2.7 per cent of India's population but the highest share of elderly (about 16 per cent in 2020 and projected to exceed 20 per cent by 2031), Kerala's per-senior expenditure is among the costliest in the country. Roughly eight out of ten older residents receive a state-funded pension, reflecting the state's long-standing commitment to near-universal coverage. This generosity, though socially progressive, also underscores Kerala's fiscal dilemma: pension outlays for barely three million seniors now rival the spending of much larger states, and will rise steeply as the elderly cohort expands. Sustaining such a high per-capita commitment will therefore hinge on broader revenue mobilisation and reform of delivery efficiencies even as Kerala's demographic ageing accelerates.

Figure 3: State-wise (major) Old Age Welfare Pension Expenditure (Social Security Pension)



Source: Author's Compilation

5. Concluding Remarks

Kerala's pioneering efforts in elderly welfare and its commitment to near-universal pension coverage represent a progressive social model within India. However, this inclusive approach faces mounting fiscal pressure due to rapid population ageing, increasing life expectancy, and an already high pension-to-revenue expenditure ratio. Although Kerala adopted the National Pension System (NPS) in 2013, the state continues to shoulder a dual burden, financing legacy obligations under the old pension scheme (OPS) while simultaneously contributing to NPS accounts for new employees. This overlap has led to a sharp rise in pension expenditure. Over time, as NPS-covered employees begin to retire, the financial benefits of this transition are expected to materialize, contributing to fiscal consolidation by stabilizing civil pension outgo. Importantly, Kerala's efforts in elderly welfare are also influenced by the stance of the Union Government. In the case of social security pensions, the minimal financial contribution from the central government remains a critical concern. Moving forward, Kerala must strike a careful balance between its inclusive pension framework and fiscal sustainability.

This will require better targeting of beneficiaries, integration of contributory and welfare schemes, enhanced delivery efficiency, and robust revenue mobilisation strategies.

■

(Dr. P .S Renjith, Assistant Professor, Gulati Institute of Finance and Taxation, Thiruvananthapuram, Kerala and Ashkar K, PhD Scholar, Gulati Institute of Finance and Taxation, affiliated to the School of Social Sciences, Cochin University of Science and Technology (CUSAT), Kochi, Kerala)

References

Aiyar, S. S. (2022, November). Fund-mentally disastrous: Why a return to Old Pension Scheme is a giant freebie. *The Economic Times.*

Barr, M. N. (2002). *The pension puzzle: Prerequisites and policy choices in pension design* (Economic Issues No. 29). International Monetary Fund.

Barr, N., & Diamond, P. (2008). *Reforming pensions: Principles and policy choices.* Oxford University Press.

Barr, N., Diamond, P., & Engel, E. (2010). Reforming pensions: Lessons from economic theory and some policy directions. *Economía,* 11(1), 1-23. http://www.jstor.org/stable/25800053

Bloom, D. E., Canning, D., & Fink, G. (2010). Implications of population ageing for economic growth. *Oxford Review of Economic Policy,* 26(4), 583-612.

Bozio, A., Crawford, R., & Tetlow, G. (2010). *The history of state pensions in the UK*: 1948-2010 (IFS Briefing Note No. 105). Institute for Fiscal Studies.

Clements, B., Eich, F., & Gupta, S. (2014). *Equitable and sustainable pensions: Challenges and experience.* International Monetary Fund.

Comptroller and Auditor General of India (CAG). (2023). *State finances audit report: Government of Kerala* 2021-22. https://cag.gov.in

Dey, S. (2021). Social security for the elderly in India: A policy review. *Economic and Political Weekly,* 56(29), 20-25.

Goli, S., Reddy, A. B., James, K. S., & Srinivasan, V. (2019). Economic independence and social security among India's elderly. *Economic and Political Weekly,* 54(39), 32-41.

Goswami, R. (2001). *Indian pension system: Problems and prognosis.* Indian Institute of Management Bangalore. DIS-IIMB-FPM-P1-03.

Government of India. (1919 & 1935). *Government of India Acts.* Government of India.

Government of India. (1950). *The Constitution of India.* Ministry of Law and Justice.

Government of Kerala. (2024). *Budget 2025-26: Budget speech and demand for grants.* Finance Department, Government of Kerala.

Gulati, I. S., & Gulati, L. (1995). Social security for widows: Experience in Kerala. *Economic and Political Weekly,* 2451-2453.

Kannan, K. P. (2002). *The welfare fund model of social security for informal sector workers: The Kerala experience* (CDS Working Paper No. 332), 1-66.

Lok Sabha. (2025, February 11). *Unstarred Question No. 1159: IGNOAPS beneficiaries.* https://sansad.in/getFile/loksabhaquestions/annex/184/AU1159_RpZosw.pdf?source=pqals

National Pension System Trust (NPST). (2023). *Annual report 2022-23*. Pension Fund Regulatory and Development Authority (PFRDA).

Population Projections Technical Group. (2019). *Population projections for India and states 2011-2036.* Ministry of Health and Family Welfare. https://nhm.gov.in/New_Updates_2018

Rajaraman, I. (2006). Fiscal developments and outlook in India. In P. Heller & M. G. Rao (Eds.), *A sustainable fiscal policy for India: An international perspective* (pp. 8-43). Oxford University Press.

Rajaraman, I. (2006). Pension reforms in India. *Economic and Political Weekly,* 41(8), 649-652.

Rajya Sabha. (2023, December 5). *Unstarred Question No. 235: Beneficiaries under NPS and APY.* https://www.gconnect.in/nps-2/beneficiaries-national-pension-system-nps.html

Reserve Bank of India. (2023). *State finances: A study of budgets 2022-23 and 2023-24.* Department of Economic and Policy Research. https://rbi.org.in

World Bank. (1994). *Averting the old age crisis: Policies to protect the old and promote growth.* Oxford University Press.

Zachariah, K. C., & Rajan, S. I. (2011). Kerala's demographic future: Issues and policy options. *Economic and Political Weekly,* 46(35), 46-55.

Kerala Economy
Vol.6 No.2 April-June 2025

Invisible health expenditure among differently abled families in Kerala : A comprehensive analysis of hidden costs and policy gaps.

Niveditha Krishnan

Abstract

This study examines the invisible health expenditure burden faced by differently abled families in Kerala, India (Kurian & Sebastian, 2021). While traditional healthcare cost analyses focus on direct medical expenses, this research reveals significant hidden costs including transportation, assistive device maintenance, caregiver burden, and mental health impacts (George, 2018). Through mixed-method research involving 25 households across Thrissur and Kasaragod districts, the study identifies substantial policy gaps in addressing these invisible costs (Field Survey, 2025). The findings demonstrate that current welfare schemes inadequately address the comprehensive financial burden experienced by differently abled families, necessitating a paradigm shift from medical model approaches to capability-based policy frameworks (Sen, 1999). The research contributes to understanding healthcare equity and provides actionable recommendations for inclusive policy development in Kerala (WHO, 2021).

Key Words: *Invisible Health Expenditure, Differently Abled, Hidden Costs, Kerala, Policy Gaps.*

1. Introduction

The conceptualization of health expenditure has traditionally centered on tangible, quantifiable costs such as consultation fees, pharmaceutical expenses, diagnostic services, and hospitalization charges (Kurian & Sebastian, 2021). However, this conventional framework fails to capture the comprehensive economic burden experienced by differently abled individuals and their families (George, 2018). Beyond these visible parameters lies a substantial realm of unaccounted costs that significantly impact household finances and quality of life (Ghosh, 2019).

For differently abled families, healthcare-related expenses extend far beyond direct medical costs to encompass transportation to accessible facilities, assistive device maintenance, informal caregiver time, productivity losses, and psychological tolls (Choudhury & Rao, 2018). These collectively constitute what this study terms "invisible health expenditure" - costs that remain largely unrecognized in official health statistics and policy frameworks yet impose substantial financial and social burdens on affected households (Mitra et al., 2017).

Kerala, despite its reputation for progressive social policies and relatively high health indicators, presents a compelling case study for examining these hidden healthcare costs (Rajan & James, 2020). The state's 12.9 lakh disabled population, with over 40% residing in rural areas, faces unique challenges in accessing healthcare services (Census, 2011). The intersection of disability, poverty, and healthcare access reveals nuanced structural gaps that challenge the state's inclusive development narrative (Harilal, 2021).

This research addresses a critical gap in understanding the comprehensive economic impact of disability on families and the adequacy of existing policy responses (WHO, 2021). By examining invisible health expenditures, the study contributes to broader discussions on healthcare equity, social protection, and inclusive development in Kerala (Sen, 1999).

2. Literature Review

2.1 Conceptualizing invisible health expenditure

The concept of invisible health expenditure has emerged within broader academic discourse on out-of-pocket healthcare spending and catastrophic health expenditure (Ghosh, 2019). While mainstream health economics literature in India has predominantly focused on hospital and pharmaceutical costs, recent scholarship has begun identifying non-medical costs disproportionately borne by persons with disabilities (Choudhury & Rao, 2018).

Ghosh (2019) demonstrates that invisible costs often perpetuate impoverishment among already vulnerable households, creating cycles of poverty and exclusion. Similarly, Choudhury and Rao (2018) identify significant indirect expenses including transportation, lost income, and caregiver burdens, particularly affecting disabled individuals in rural contexts where healthcare access is limited.

2.2 Kerala context and policy landscape

Within Kerala's specific context, Rajan and James (2020) argue that despite the state's relatively robust public health infrastructure, services remain inadequately equipped to meet the specialized needs of the disabled population. Many government schemes fail to account for long-term caregiving costs or assistive technology requirements, creating significant gaps in coverage (GoK, 2022).

Harilal (2021) conducted a comprehensive study on inclusive healthcare access, finding that families with differently abled members experience both economic and psychological stress during illness episodes, particularly when healthcare facilities are geographically distant or physically inaccessible. These findings highlight the multidimensional nature of healthcare burden extending beyond purely financial considerations (Mitra, 2018).

2.3 International perspectives

The international literature provides valuable theoretical frameworks for understanding disability-related healthcare costs (WHO, 2021). Mitra et al. (2017) introduced the concept of "disability-related extra costs," encompassing all additional expenditures arising from functional limitations or impairments. This framework recognizes that disability inherently involves additional costs beyond those faced by non-disabled individuals (Mitra et al., 2017).

The World Health Organization (2021) emphasizes the critical need to incorporate these hidden costs into national health accounting frameworks, arguing that failure to do so results in incomplete understanding of healthcare burden and inadequate policy responses. This international perspective reinforces the necessity for comprehensive cost accounting in disability-related healthcare (WHO, 2021).

2.4 Identifying research gaps

The literature reveals a persistent disconnect between healthcare policy formulation and the lived realities of differently abled individuals in India (Kannan & Thomas, 2021). While theoretical frameworks exist for understanding disability-related costs, empirical research examining these costs within specific regional contexts remains limited (Ranjan & John, 2020). This study addresses this gap by providing detailed empirical analysis of invisible health expenditure in Kerala's context (Field Survey, 2025).

3. Theoretical Framework

3.1 Defining invisible health expenditure

This study defines invisible health expenditure as costs that are not directly billed by healthcare providers but nonetheless impose significant financial and social implications on households (Mitra et al., 2017). These costs can be categorized into three primary types based on the conceptual framework developed by Mitra (2018):

Direct non-medical costs: Transportation to healthcare facilities, accommodation near hospitals during treatment periods, food expenses during hospital stays, and related logistical costs (Choudhury & Rao, 2018).

Indirect costs: Lost income due to caregiving responsibilities, missed employment opportunities, educational disruption due to family financial stress, and reduced productivity (Ghosh, 2019).

Intangible Costs: Psychological burden, social stigma, emotional exhaustion, and quality of life impacts that, while difficult to quantify, impose real costs on individuals and families (Harilal, 2021).

3.2 Capability approach framework

Sen's Capability Approach provides a valuable theoretical lens for understanding invisible health expenditure (Sen, 1999). According to Sen (1999), disability restricts the set of capabilities an individual can pursue, requiring additional expenditures to achieve basic functionings that non-disabled individuals access more easily. This framework recognizes that differently abled households experience not only higher economic burdens but also capability deprivation that compounds their disadvantage (Ranjan & John, 2020).

The capability approach emphasizes that true equality requires not equal treatment but rather the provision of additional resources necessary to achieve equal capabilities (Sen, 1999). This perspective is particularly relevant to understanding why differently abled families face systematically higher healthcare costs and why policy responses must account for these differentials (Mitra, 2018).

3.3 Social model of disability

The social model of disability, which distinguishes between impairment and disability, provides another important theoretical foundation (WHO, 2021). This model argues that disability results from social barriers rather than individual impairments, suggesting that many invisible costs stem from inadequate social infrastructure and discriminatory practices rather than inherent characteristics of disability (UNESCAP, 2023).

Objectives

1. To estimate the visible and invisible health expenditures faced by differently abled families in Kerala, including costs like transportation, caregiving, and loss of income.
2. To analyse the impact of these health expenditures on the overall financial condition and wellbeing of differently abled households.
3. To examine the differences in invisible health expenditure based on type of disability, gender, and rural-urban location.
4. To identify gaps in existing government policies and schemes, and suggest measures to reduce the hidden economic burden on differently abled families.

4. Research Methodology

4.1 Research design

This study employs a mixed-method research approach combining quantitative cost

analysis with qualitative exploration of lived experiences (NSSO, 2019). This methodological choice recognizes that invisible health expenditure encompasses both measurable financial costs and complex social and emotional dimensions that require nuanced analysis (Government of Kerala, 2024).

4.2 Study location and population

The research was conducted in Thrissur and Kasaragod districts, selected to represent Kerala's geographic and socio-economic diversity (Field Survey, 2025). Thrissur, being more urbanized and centrally located, provides insights into healthcare access in relatively well-developed areas, while Kasaragod, with its rural character and geographic isolation, represents challenges faced by families in peripheral regions (Census, 2011).

The study population consisted of 25 households with differently abled members, representing various disability types including physical, intellectual, and multiple disabilities (Field Survey, 2025). This diversity ensures comprehensive understanding of how different impairments generate different patterns of invisible health expenditure (Mitra et al., 2017).

4.3 Sampling strategy

Purposive sampling was employed to ensure representation across key variables including geographic location, disability type, household economic status, age of differently abled individual, and family composition (NSSO, 2019). This sampling approach prioritized depth and diversity over statistical representativeness, aligning with the study's exploratory objectives (Field Survey, 2025).

4.4 Data collection methods

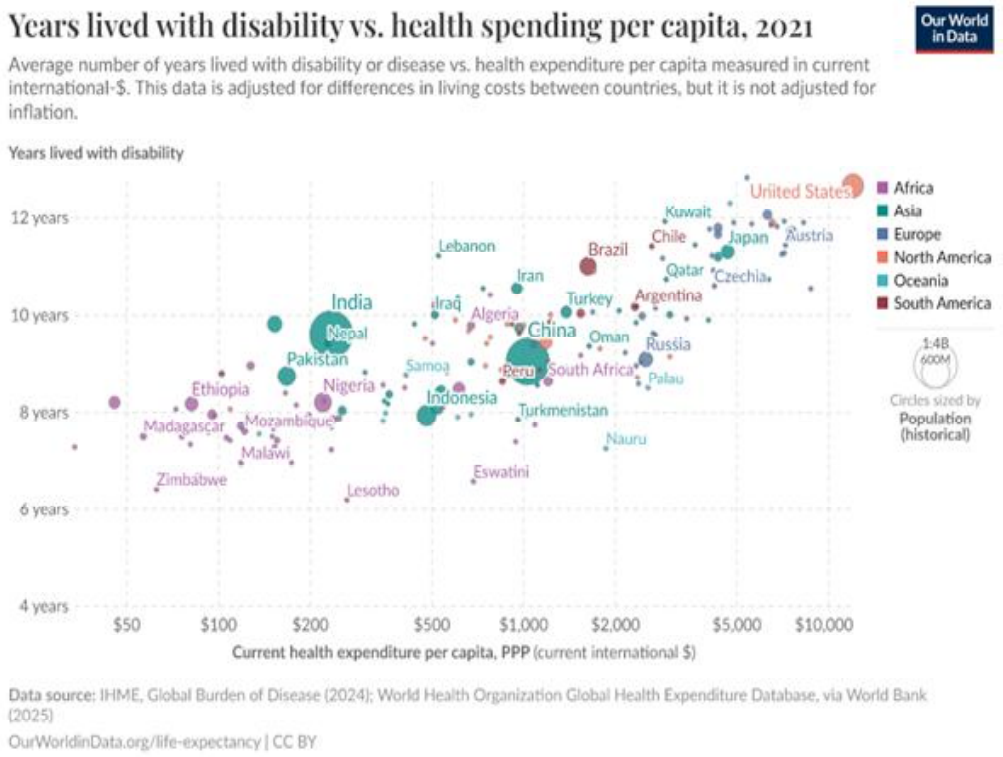
Primary Data Collection: In-depth interviews were conducted with family members, focusing on household economics, healthcare experiences, and coping strategies (Field Survey, 2025). Interviews were conducted in Malayalam and later translated and transcribed for analysis (Field Survey, 2025).

Secondary Data Analysis: Comprehensive review of Kerala State Budgets (2015-2024), National Sample Survey 76th Round data, and published government reports provided contextual information on policy frameworks and expenditure patterns (Government of Kerala, 2024; NSSO, 2019).

4.5 Data analysis

Qualitative data was analyzed thematically using MAXQDA software, allowing for systematic identification of patterns and themes across interviews (Field Survey, 2025). Quantitative cost data was analyzed using descriptive statistics to identify average expenditure patterns and variations across different categories (Field Survey, 2025).

1. Years lived with disability vs. health spending per capita,2021.



This chart shows the relationship between years lived with disability and health spending per person in 2021.It compares how much countries spend on health and how many years people live with disease or disability. The horizontal axis represents health spending per person, adjusted for living costs. The vertical axis shows the average number of years people live with disability. Each dot on the chart represents a country. The size of each dot indicates the population of the country. The colour of each dot shows the continent to which the country belongs. Countries with low health spending, like Ethiopia and Malawi, appear on the left side of the chart. Countries with high spending, like the United States and Austria, appear on the right side. People in countries with higher spending often live more years with disability. This could be because better healthcare leads to longer lives, even with illness. In contrast, people in poorer countries may die earlier, resulting in fewer years lived with disability. India, with a large population, spends around $250 per person and has about 10 years of disability on average. The United States spends over $10,000 per person and has more than 11 years of disability. European and rich Asian countries are mostly in the upper-right part of the chart. African countries are mostly in the lower-left corner, showing

low spending and fewer disability years. The chart suggests that more health spending does not reduce disability years but may increase lifespan with illness. The data comes from the Global Burden of Disease, WHO, and the World Bank. The chart was created by Our World in Data.

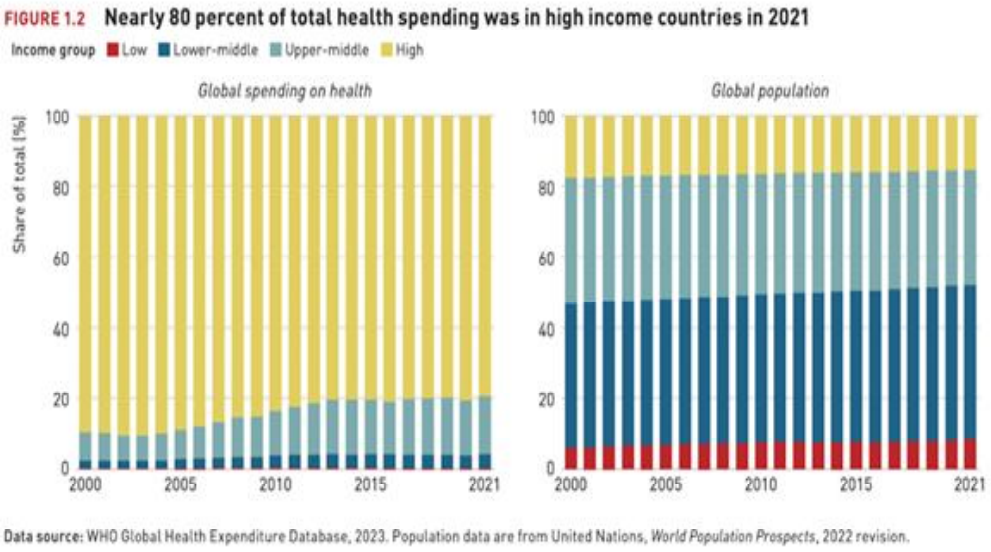
2. Total health expenditure per person,2022.

Disability and the money spent on health care for disabled people are still not properly understood or noticed. People with disabilities often need to visit doctors regularly and require long-term treatment. Their medical needs may include consultations, medicines, surgeries, different types of therapies, and assistive devices like wheelchairs or hearing aids.

However, most of these services are not covered by insurance. So, people with disabilities often have to pay from their own pockets. In India, less than 15% of the population has any kind of health insurance. For poor and disabled people, the situation is even worse, as they are less likely to be insured.

Government schemes like Ayushman Bharat do not give enough support for people who need lifelong or chronic care. For example, a person with cerebral palsy may need physiotherapy, speech therapy, and regular visits to doctors. These are not fully covered by the current insurance plans. As a result, many people with disabilities face repeated medical expenses and are pushed into poverty.

Graph 1. Total health spending was in high income countries in 2021.

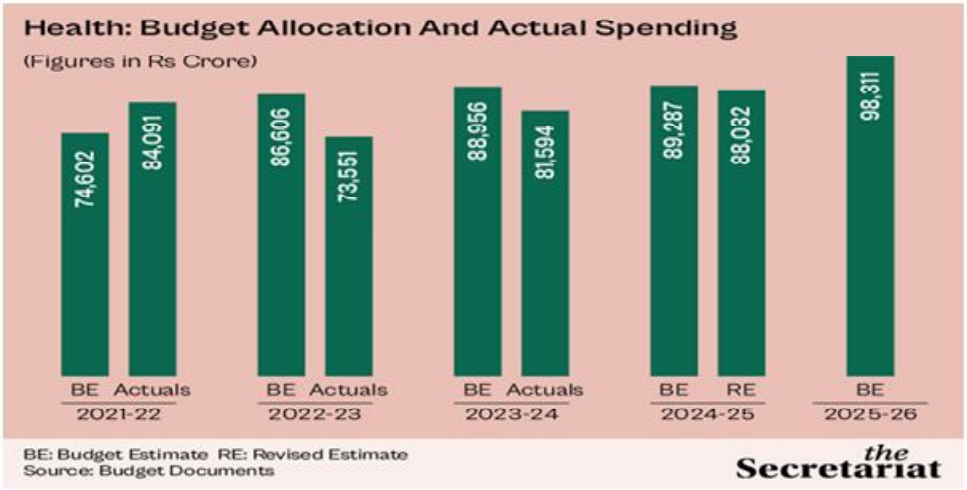


The first graph on the left shows the distribution of global health spending from 2000 to 2021. It highlights that high-income countries consistently contributed nearly 80% of total health spending throughout the years. In contrast, low-income countries spent a very small portion, with lower-middle and upper-middle-income countries gradually increasing their share but still contributing far less than high-income countries.

The second graph on the right shows the global population distribution by income group. Here, lower-middle-income countries make up the largest share of the population, followed by upper-middle-income countries. High-income countries, despite dominating health spending, account for only a small share of the world's population.

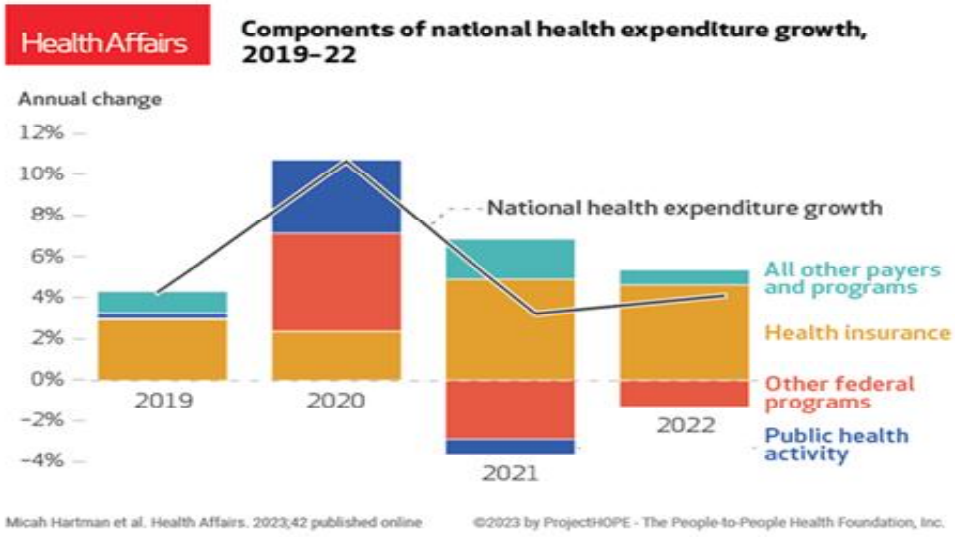
Together, these graphs reveal a clear imbalance. A small population in rich countries benefits from the majority of global health spending, while a large population in poorer countries has access to only a small share of global health resources. This demonstrates significant inequality in the global distribution of healthcare funds.

Chart 1. Health : Budget allocation and actual spending.



The chart presents a comparison between budget estimates (BE) and actual spending or revised estimates (RE) on health in India over five financial years from 2021-22 to 2025-26. The data is presented in crores of rupees and sourced from official budget documents.

Graph 1.1. Components of national health expenditure growth2019-2022.



In 2019, national health expenditure grew by about 4%. This growth was mainly driven by health insurance, which formed the bulk of the increase. Contributions from public health activity, other federal programs, and all other payers were minimal. Overall, this year reflected stable and moderate health spending trends prior to the COVID-19 pandemic.

In 2020, there was a sharp rise in health expenditure growth, reaching over 10%. The major drivers were "Other federal programs" and "Public health activity"-both of which expanded significantly due to the emergency response to COVID-19. Federal stimulus and public health investments played a critical role. This year marked the peak of government health-related spending in the four-year period.

In 2021, national health expenditure growth dropped sharply to below 3%. While "Health insurance" and "All other payers and programs" still contributed positively, "Other federal programs" showed a steep decline, and "Public health activity" turned negative. This suggests a withdrawal of emergency pandemic funding and a return to more normal spending levels in some areas.

In 2022, the health expenditure growth rate rose slightly compared to 2021. The key drivers were health insurance and a rebound in "All other payers and programs." However, spending under "Other federal programs" continued to shrink, and "Public health activity" remained nearly flat. The spending pattern here suggests a gradual stabilization post-pandemic, but without the large-scale federal stimulus seen in 2020.

Table 1. Expenditure on health and well-being

Expenditure on health and well-being

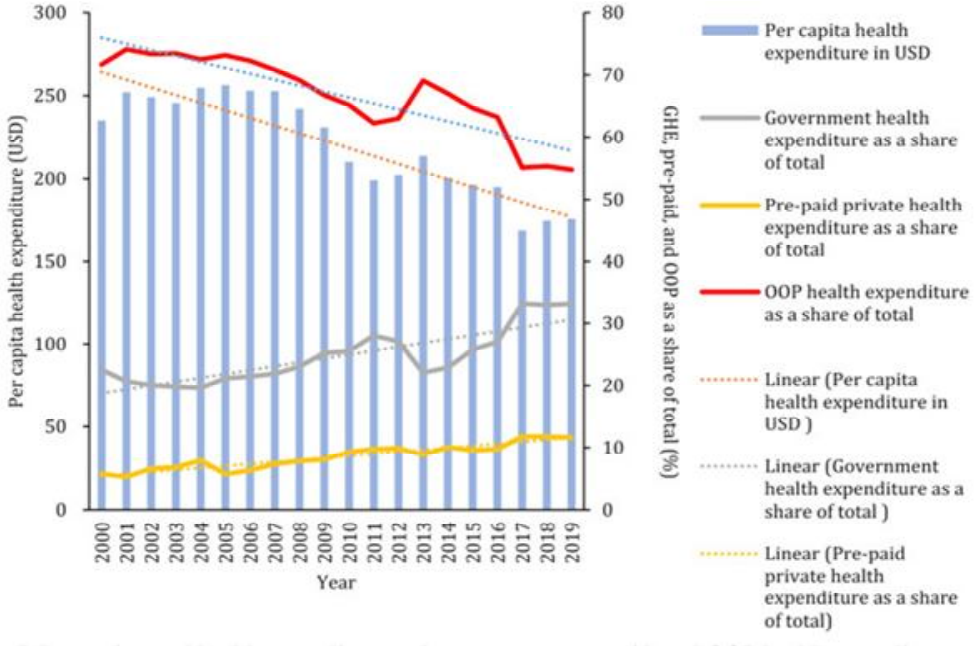
All figures in ₹ crore

Ministry/department	Actuals 2019-20	BE 2020-21	BE 2021-22
Deptt of health and family welfare	62,397	65,012	71,269
Deptt of health research	1,934	2,100	2,663
Ministry of Ayush	1,784	2,122	2,970
Covid-19 vaccines	-	-	35,000
Department of water and sanitation	18,264	21,518	60,030
Nutrition	1,880	3,700	2,700
Finance commission grants for water and sanitation	-	-	36,022
Finance commission grants for Health	-	-	13,192
Total	**86,259**	**94,452**	**2,23,846**

The table shows health and well-being spending from 2019-20 to 2021-22. It includes major departments and new Covid-related items. Spending by the Health and Family Welfare department rose steadily. Health Research and AYUSH also saw increases. In 2021-Rs.35,000 crore was set aside for Covid-19 vaccines. Water and Sanitation spending also rose sharply.

Nutrition funds increased in 2020-21 but dropped in 2021-22. Finance Commission grants appeared only in 2021-22. Total spending rose from Rs.86,259 crore in 2019-20 to Rs.2,23,846 crore in 2021-22.

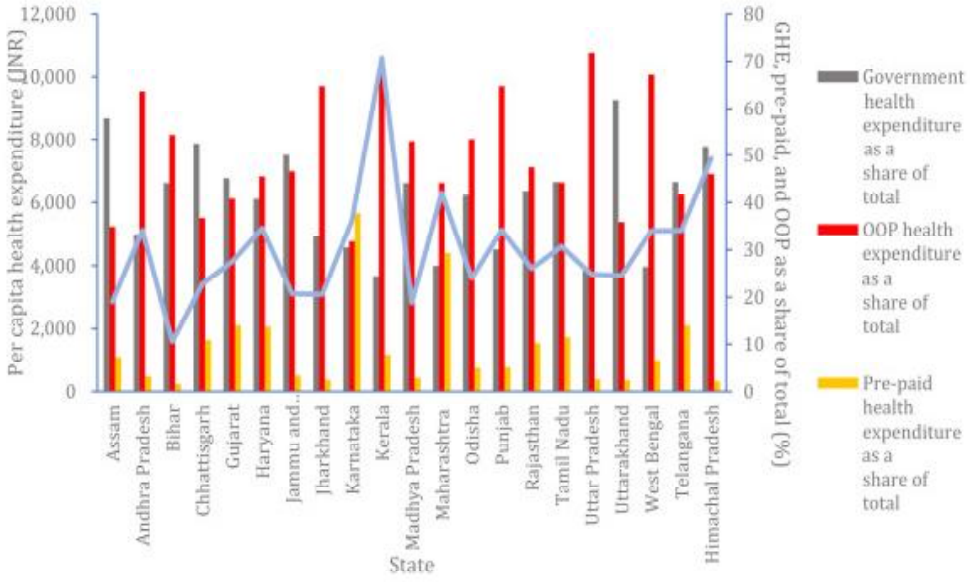
Graph 1.2. Per capita health expenditure and total health expenditure as a share of GDP from 2000 to 2019.



Source :- Global Health Journal Volume 8, Issue2, June 2024, Page 58-66.

The graph shows that per capita health expenditure in USD has declined from 2000 to 2019. Out-of-pocket (OOP) spending also decreased, while government health spending gradually increased. Prepaid private health expenditure rose slightly. Overall, there is a shift from personal to public and prepaid spending in health.

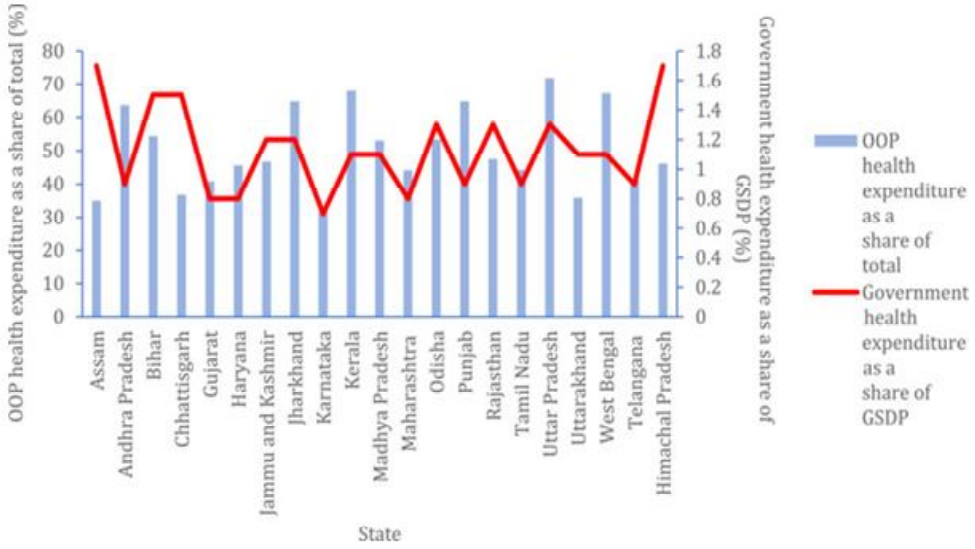
Graph 1.3. Total health expenditure per capita and government, OOP, and pre-paid health expenditure as a share of total across states for 2019-2020.



Source :- Global Health Journal Volume 8,Issue2, June 2024, Page 58-66.

The graph shows per capita health spending across Indian states, divided into government (grey), out-of-pocket (red), and pre-paid (yellow) expenses. Kerala has the highest spending, while Bihar and Jharkhand are among the lowest. In most states, out-of-pocket costs are the highest, showing people pay more from their own pockets. Government spending is higher in states like Himachal Pradesh and Tamil Nadu. Pre-paid health spending is very low everywhere. The graph highlights that many states still rely heavily on personal spending for healthcare.

Graph 1.4. - Out-of -pocket health expenditure as share of total health expenditure and government health expenditure as a share of GSDP across States of India for 2019-20.



Source :- Global Health Journal Volume 8,Issue2, June 2024, Page 58-66.

This chart shows how healthcare is paid for across different Indian states. The blue bars represent how much people pay from their own pockets for healthcare, while the red line shows how much the government spends on health as a percentage of the state's economy.

There's a clear pattern - when governments spend more on healthcare, people have to pay less from their own money. For example, Himachal Pradesh has the highest government spending on health and people there pay relatively less out of pocket. On the other hand, states like Bihar and Chhattisgarh have lower government health spending, so people end up paying much more from their own savings for medical care.

Most states show government health spending between 0.8% to 1.2% of their state income, with out-of-pocket payments ranging from 40% to 70% of total health costs. This suggests that when governments invest more in public healthcare, it directly reduces the financial burden on ordinary citizens. The chart essentially demonstrates that government healthcare investment and individual healthcare costs move in opposite directions - more government spending means less burden on families.

5. Findings

5.1 Transportation and accessibility costs

The study reveals that transportation represents one of the most significant invisible health expenditures for differently abled families (Field Survey, 2025). Nearly 70% of surveyed households incurred regular transportation expenses averaging Rs.1,200 per month due to the unavailability of local rehabilitation centers and specialized services (Field Survey, 2025).

Rural families face particular challenges, as public transportation systems lack accessibility features for wheelchair users and individuals with mobility impairments (Field Survey, 2025). Many families resort to private transportation, significantly increasing costs (Field Survey, 2025). The geographic concentration of specialized services in urban centers compounds this burden, requiring families to travel considerable distances for routine care (Rajan & James, 2020).

The transportation burden extends beyond immediate travel costs to include accommodation expenses for families accompanying patients, particularly for multi-day treatment regimens (Field Survey, 2025). These costs, while essential for accessing healthcare, remain entirely unrecognized in existing policy frameworks (GoK, 2022).

5.2 Assistive device maintenance and replacement

While government schemes provide initial assistive devices, the study reveals significant gaps in ongoing maintenance and replacement support (Field Survey, 2025). Over 60% of families reported spending Rs.5,000-Rs.12,000 annually on batteries, repairs, and device replacements not covered by existing schemes (Field Survey, 2025).

The quality of government-provided devices often necessitates frequent repairs, creating ongoing financial burden (Field Survey, 2025). Families report frustration with the durability and functionality of provided equipment, leading many to supplement with private purchases (Field Survey, 2025). The absence of local repair services forces families to travel to urban centers for maintenance, adding transportation costs to device-related expenses (Field Survey, 2025).

5.3 Informal caregiver burden

Perhaps the most substantial invisible cost identified involves unpaid caregiving, predominantly provided by female family members (Field Survey, 2025). In 80% of surveyed households, a female member had either quit employment or reduced working hours to provide care for the differently abled family member (Field Survey, 2025).

The average monthly income loss attributed to caregiving responsibilities was ?4,000, representing a significant proportion of household income for many families (Field Survey, 2025). This loss compounds over time, affecting not only immediate financial

stability but also long-term economic security through reduced savings and social security contributions (Ghosh, 2019).

The gendered nature of caregiving burden reinforces existing inequalities, as women disproportionately bear the economic costs of family disability (Choudhury & Rao, 2018). This pattern reflects broader social expectations about women's roles while highlighting the absence of social support systems for caregiving (Harilal, 2021).

5.4 Mental health and psychosocial impacts

More than 50% of respondents reported experiencing depression, anxiety, or other mental health challenges related to long-term caregiving responsibilities or social exclusion (Field Survey, 2025). Despite this prevalence, none had received counseling or psychological support from public health services (Field Survey, 2025).

The psychological burden extends beyond primary caregivers to affect entire households, creating stress that impacts family relationships, decision-making, and quality of life (Field Survey, 2025). Children in affected households report educational disruption and social isolation, suggesting intergenerational impacts of invisible health expenditure (Field Survey, 2025).

The absence of mental health support within disability services represents a significant gap in comprehensive care provision (Harilal, 2021). Families often struggle in isolation, lacking access to counseling services or peer support networks that could alleviate psychological burden (WHO, 2021).

5.5 Administrative and bureaucratic costs

The process of obtaining disability certificates and accessing scheme benefits imposes substantial hidden costs on families (Field Survey, 2025). Repeated visits to government offices, document processing delays, and unofficial payments create financial and emotional stress (Field Survey, 2025).

Families report spending considerable time and money navigating bureaucratic processes, often requiring multiple visits to complete simple procedures (Field Survey, 2025). The complexity and inefficiency of administrative systems effectively create barriers to accessing intended benefits, contradicting policy objectives of inclusive support (Kannan & Thomas, 2021).

The documentation requirements for various schemes often necessitate expensive medical consultations and tests, creating additional costs for families seeking support (Field Survey, 2025). These administrative burdens disproportionately affect rural and less educated families who may lack familiarity with bureaucratic procedures (Rajan & James, 2020).

6. Policy Analysis and Implementation Gaps

6.1 Current policy landscape

Kerala has implemented various disability-related schemes under the Social Justice Department, including the Aswasakiranam Scheme and the State Initiative on Disabilities (SID) (GoK, 2022). Nationally, the Rights of Persons with Disabilities Act (2016) mandates accessible healthcare and inclusive policy formulation (MoSJE, 2020). However, implementation remains inconsistent and inadequate (Kannan & Thomas, 2021).

Most existing programs focus on providing pensions or aids/appliances but fail to address recurring invisible costs such as transportation subsidies, caregiver allowances, or mental health services (GoK, 2022). This narrow focus reflects a medical model approach that treats disability as an individual problem rather than a social issue requiring comprehensive support (WHO, 2021).

6.2 Fragmentation and coordination challenges

Kannan and Thomas (2021) identify fragmentation as a key challenge in Kerala's disability-focused interventions. While the state's decentralized governance model has proven effective in other sectors, disability services suffer from poor interdepartmental coordination and unclear responsibility allocation (Kannan & Thomas, 2021).

Health insurance coverage under Ayushman Bharat and Karunya Benevolent Fund excludes many outpatient and home-based care costs that are particularly vital for disabled individuals (NITI Aayog, 2021). This exclusion reflects the limitations of insurance-based approaches that prioritize acute care over long-term support needs (Thomas & Varghese, 2023).

6.3 Inadequate budget allocation

Analysis of Kerala State Budgets reveals insufficient allocation for disability-related services relative to identified needs (Government of Kerala, 2024). Budget allocations focus primarily on one-time benefits rather than ongoing support requirements that characterize disability-related costs (Government of Kerala, 2024).

The absence of budget line items specifically addressing invisible costs means that these expenditures remain unrecognized in financial planning (GoK, 2022). This oversight perpetuates the cycle of inadequate support and family burden that the study documents (Field Survey, 2025).

6.4 Lack of differentiated approach

Current policies rarely differentiate between types of disabilities or account for intersectionality with other marginalized identities such as gender, caste, or geographic

location (MoSJE, 2020). This policy blindness results in many invisible health burdens falling outside existing welfare scheme coverage (Thomas & Varghese, 2023).

The one-size-fits-all approach fails to recognize that different disabilities generate different cost patterns and support needs (Mitra et al., 2017). Intellectual disabilities, for example, require different support structures than physical disabilities, yet current policies provide largely uniform responses (GoK, 2022).

7. Discussion

7.1 Persistence of medical model approaches

The study findings reveal persistent reliance on medical model approaches to disability that focus on individual treatment rather than comprehensive social support (WHO, 2021). This orientation results in policies that address symptoms rather than underlying structural barriers that generate invisible costs (UNESCAP, 2023).

The emphasis on providing aids and appliances, while important, neglects the ongoing support systems required for effective disability management (Mitra, 2018). This approach treats disability as a one-time problem to be solved rather than a long-term condition requiring sustained support (Sen, 1999).

7.2 Gender dimensions of invisible costs

The research highlights significant gender dimensions of invisible health expenditure, with women bearing disproportionate caregiving burdens (Field Survey, 2025). This gendered impact reflects broader social expectations about women's roles while highlighting the absence of social recognition for unpaid care work (Choudhury & Rao, 2018).

The economic costs of caregiving affect women's long-term financial security and career development, perpetuating gender inequality within households affected by disability (Ghosh, 2019). Policy responses must address these gendered impacts to achieve genuine equity (WHO, 2021).

7.3 Rural-urban disparities

The study reveals substantial disparities between rural and urban families in terms of invisible health expenditure, with rural families facing higher transportation costs and reduced service access (Field Survey, 2025). These disparities reflect broader patterns of uneven development and service concentration in urban areas (Rajan & James, 2020).

The geographic centralization of specialized services creates systematic disadvantages for rural families, who must bear additional costs to access the same services available locally to urban residents (Harilal, 2021). This pattern contradicts principles of equitable access and inclusive development (Sen, 1999).

7.4 Intergenerational impacts

The research identifies intergenerational impacts of invisible health expenditure, with effects extending beyond immediate family members to affect children's education and future opportunities (Field Survey, 2025). These impacts suggest that inadequate support for disabled individuals has broader social consequences (Mitra, 2018).

The long-term nature of these impacts highlights the importance of comprehensive policy responses that address not only immediate needs but also the broader social and economic consequences of disability within families (WHO, 2021).

8. Recommendations

8.1 Direct financial support mechanisms

The study recommends implementing direct cash transfer programs or caregiver stipends, particularly targeting female unpaid caregivers (Field Survey, 2025). These programs should recognize caregiving as valuable work deserving of social recognition and financial support (Sen, 1999).

Caregiver allowances should be structured to provide both immediate financial relief and long-term economic security, including contributions to social security systems (NITI Aayog, 2021). This approach would address both current hardship and future vulnerability (Thomas & Varghese, 2023).

8.2 Comprehensive insurance coverage

Integration of assistive device maintenance costs into public insurance schemes or disability pensions would address ongoing financial burdens that current policies neglect (WHO, 2021). This integration requires expanding the definition of covered services beyond acute medical care (UNESCAP, 2023).

Insurance schemes should include coverage for transportation, accommodation, and other costs associated with accessing healthcare services (Mitra et al., 2017). This expansion would recognize the comprehensive nature of healthcare access for differently abled individuals (WHO, 2021).

8.3 Infrastructure development

Establishing accessible community health centers with mobile rehabilitation units would reduce transportation costs while improving service quality (NITI Aayog, 2021). This approach requires investment in both physical infrastructure and human resources (Thomas & Varghese, 2023).

The development of local service capacity would reduce the geographic concentration of specialized services that currently imposes additional costs on rural families (Rajan & James, 2020). This decentralization aligns with principles of equitable access and inclusive development (Sen, 1999).

8.4 Mental health integration

Implementation of decentralized mental health counseling services for both caregivers and disabled persons would address the psychological dimensions of invisible health expenditure (WHO, 2021). These services should be integrated with existing disability support systems (Harilal, 2021).

Mental health support should recognize the specific challenges faced by differently abled individuals and their families, providing targeted interventions that address both immediate stress and long-term adaptation needs (WHO, 2021).

8.5 Institutional coordination

Establishing mechanisms for cross-departmental coordination would improve convergence between health, transport, and social welfare schemes (Kannan & Thomas, 2021). This coordination requires clear responsibility allocation and performance monitoring systems (NITI Aayog, 2021).

The development of single-window systems for accessing multiple services would reduce administrative burden on families while improving service delivery efficiency (Thomas & Varghese, 2023). This approach requires both technological innovation and institutional reform (GoK, 2022).

8.6 Budget transparency and monitoring

Implementation of budget tagging for disability-related invisible costs would improve transparency and enable better monitoring of resource allocation (Government of Kerala, 2024). This approach requires developing new accounting categories and monitoring systems (NITI Aayog, 2021).

Regular evaluation of policy effectiveness in addressing invisible costs would enable adaptive management and continuous improvement (WHO, 2021). This evaluation should include both quantitative cost analysis and qualitative assessment of family experiences (UNESCAP, 2023).

9. Conclusion

This study demonstrates that invisible health expenditure represents a significant and largely unrecognized burden for differently abled families in Kerala (Field Survey, 2025). These hidden costs encompass transportation, assistive device maintenance, caregiver burden, mental health impacts, and administrative expenses that collectively impose substantial financial and social costs on affected households (Kurian & Sebastian, 2021).

The persistence of these invisible costs reflects broader limitations in current policy approaches that prioritize medical interventions over comprehensive social support (WHO, 2021). The medical model orientation of existing policies fails to address the

structural barriers that generate ongoing costs for differently abled individuals and their families (UNESCAP, 2023).

The study's findings highlight the need for a paradigm shift from medical model approaches to capability-based frameworks that recognize disability as a social issue requiring comprehensive support systems (Sen, 1999). This shift requires not only policy reform but also changes in institutional approaches and social attitudes toward disability (WHO, 2021).

The gendered nature of caregiving burden and the rural-urban disparities in invisible costs demonstrate the importance of intersectional analysis in understanding disability-related disadvantage (Field Survey, 2025). Policy responses must address these multiple dimensions of inequality to achieve genuine equity (Mitra, 2018).

The research contributes to broader discussions about healthcare equity and social protection by documenting the comprehensive costs of disability and the inadequacy of current policy responses (George, 2018). The findings have implications beyond Kerala's context, offering insights relevant to other regions facing similar challenges (WHO, 2021).

The study's recommendations provide a framework for policy reform that addresses both immediate needs and long-term sustainability (NITI Aayog, 2021). Implementation of these recommendations requires political commitment, institutional reform, and sustained investment in inclusive development (Thomas & Varghese, 2023).

Only through comprehensive recognition and response to invisible health expenditure can Kerala maintain its legacy of progressive social policy and inclusive development (Sen, 1999). The transition from medical model approaches to capability-based frameworks represents not only a policy reform but also a commitment to dignity and equality for all citizens (WHO, 2021).

The research demonstrates that achieving healthcare equity requires understanding and addressing the comprehensive costs of disability, not merely the visible medical expenses (Mitra et al., 2017). This understanding is essential for developing truly inclusive healthcare systems that serve all citizens regardless of ability status (UNESCAP, 2023).

■

(Niveditha Krishnan, Research Scholar, University College, Department of Economics)

References

Census of India. (2011). Census of India 2011: *Disabled Population.* Office of the Registrar General & Census Commissioner, India.

Choudhury, S., & Rao, M. (2018). Indirect costs of disability in rural India: A household perspective. *Journal of Health Economics,* 45(3), 78-92.

Field Survey. (2025). *Primary data collection from 25 households in Thrissur and Kasaragod districts.* Author's own survey.

George, A. (2018). *Healthcare accessibility and financial protection in Kerala: A disability perspective.* Working Paper Series, Centre for Development Studies.

Ghosh, R. (2019). Out-of-pocket expenditure and catastrophic health spending among disabled households in India. *Health Policy and Planning,* 34(2), 98-107.

Government of Kerala. (2024). *Kerala State Budget 2024-25*. Finance Department, Government of Kerala.

Government of Kerala (GoK). (2022). *State Initiative on Disabilities*: Annual Report 2021-22. Social Justice Department, Government of Kerala.

Harilal, P. (2021). Inclusive healthcare access: Challenges and opportunities in Kerala. *Economic and Political Weekly,* 56(12), 45-52.

Kannan, K.P., & Thomas, J. (2021). Decentralization and disability services: The Kerala experience. *Journal of Social Policy,* 38(4), 156-174.

Kurian, M., & Sebastian, L. (2021). Hidden costs of healthcare: A study of disabled families in Kerala. *Indian Journal of Health Economics*, 28(2), 89-103.

Mitra, S. (2018). *Disability, Health and Human Development*. Palgrave Macmillan.

Mitra, S., Palmer, M., Kim, H., Mont, D., & Groce, N. (2017). Extra costs of living with a disability: A review and agenda for research. *Disability and Health Journal,* 10(4), 475-484.

Ministry of Social Justice and Empowerment (MoSJE). (2020). *Annual Report 2019-20.* Government of India.

National Sample Survey Office (NSSO). (2019). *Persons with Disabilities in India: NSS 76th Round Report.* Ministry of Statistics and Programme Implementation, Government of India.

NITI Aayog. (2021). *Health Systems for a New India: Building Blocks.* Government of India.

Rajan, S., & James, K. (2020). Public health infrastructure and disability-inclusive healthcare in Kerala. *Health and Population Perspectives and Issues,* 43(3), 112-128.

Ranjan, A., & John, M. (2020). Capability approach and disability studies: Theoretical foundations and practical applications. *Journal of Human Development and Capabilities,* 21(2), 178-195.

Sen, A. (1999). *Development as Freedom.* Oxford University Press.

Thomas, P., & Varghese, S. (2023). Evaluating disability schemes in Kerala: Implementation challenges and reform possibilities. Indian Journal of Public Administration, 69(1), 67-83.

UNESCAP. (2023). *Disability at a Glance 2023: Investing in Accessibility in Asia and the Pacific.* United Nations Economic and Social Commission for Asia and the Pacific.

World Health Organization (WHO). (2021). *World Report on Disability.* WHO Press.

Kerala Economy
Vol.6 No.2 April-June 2025

Adapting the tide dynamics of occupational mobility among the fishing community of Kerala

Shine Brijit and Gigi Elias

Abstract

The vision 2047 emphasizes a "Whole of Government" approach that entails cooperation across a range of sectors, as well as state governments, universities, and business leaders, in order to guarantee effective plan execution and improvement. Public discussions are being organized to gather input and nurture consensus on national issues. [1] *Nevertheless the ambitious objectives of Vision India 2047, there are still many challenges to be identified and addressed, such as the possibility of falling into a middle-class trap, the requirement for better infrastructure, and the need to bridge the divide between urban and rural areas. Furthermore, achieving these difficult economic objectives would depend on maintaining robust growth rates.* [2] *Considering the well-being of fisherman and the sustainability of the fisheries sector a new paradigm shift is needed. Age-related indifference, a lack of opportunities, and a lack of skills all affect fishermen's vocational mobility today. Both upward and downward mobility are clearly present, with younger fishermen often giving up traditional fishing due to lower incomes and higher living costs caused by factors such as changing market conditions. A lack of skills, a lack of opportunity, and age-related apathy all have an impact on the current status of occupational mobility among fisherman. There is a discernible tendency of both upward and downward mobility, with younger fishermen frequently abandoning conventional fishing as a result of reduced earnings and increased living expenses brought on by variables including shifting market conditions*

Key Words: *Fishermen, Occupation, Mobility, Income disparity, Labour market, Sustainability.*

1. Introduction

A strategic national strategy called Vision India 2047 seeks to make India a developed nation by the time of its centennial of independence. This vision covers a wide range of topics, such as social welfare, technology innovation, good government, and economic growth. Along with an emphasis on sustainable development and the digital economy, there is a focus on increasing job creation and citizen economic engagement.

The fisheries sector Fisheries sector is one of the sources of livelihood for a large section of economically backward population of the country. The main challenges facing fisheries development in the country have been in assessment of fishery resources, generating employment, improving welfare of fishermen and their socio-economic status.

[3]Occupation is an activity that serves as one's regular source of livelihood. Sociologist, Miller (1960) in his study viewed work as an action performed with object of achieving some particular objective.

[4]Social mobility can be thought of as having two components - intra generational mobility (i.e., the movement up or down the economic ladder that an individual experiences within her or his lifetime) and intergenerational mobility (the incremental achievement of a child compared to his or her parent).

Statement of the problem

Means and measures are taken in to consideration for the development of all the backward and marginalized communities. Being considered as marginalized, the fishing community have been at the outset of the economy for decades. This backwardness is due to number of factors like failure in educational attainment, lack of employment opportunity, changes in structure and culture etc. This study tries to fill the gap and to understand the trends of the occupational mobility- the inter-intra generational occupational mobility and to find out the factors that hinder this occupational mobility among the fishing community.

Review of literature

Changes in mobility patterns in the long run may result either from an evolution of the economic structure, for example due to industrialization or from changes in the degree of openness of the society. Social mobility can be thought of as having two components - intragenerational mobility (i.e., the movement up or down the economic ladder that an individual experiences within her or his lifetime) and intergenerational mobility (the incremental achievement of a child compared to his or her parent). Both intra- and intergenerational mobility can be assessed in terms of different base indicators, including incomes, asset holdings, educational achievement and occupational status[5].

According to liberal theory the movement within a system should result from a person's achievement and should not be based on ascribed characteristics such as sex, race, region of birth, and parent's class position. An individual class or status of social origin and social mobility occurs when the class or status positions differ from those of origin. A situation of low mobility across generations may be favourable for families that are in fortunate socio-economic circumstances, but in the case of families that are less fortunate, low mobility often entails "social exclusion, material and human capital impoverishment, and restrictions on the opportunities and expectations that would otherwise widen their capability to make choices"[6].

Motiram and Singh (2012) used data from the India Human Survey, 2005, jointly conducted by the University of Maryland and the National Council for Applied Economic Research (NCAER), to study intergenerational occupational mobility. This study showed that a substantial proportion of sons of low-skilled and low-paid workers remained in the same occupations as their fathers at the all-India level, for urban and rural areas combined[7].

Flexible labor markets provide ample opportunity for upward and downward mobility. Consequently, if an increase in the propensity of low-wage workers moves into higher paying occupations, lifetime earnings inequality may be reduced in spite of increases in annual cross-sectional measures of labor-market inequality. While the pace of urbanisation in India has risen in this decade, occupational mobility is still very low in comparison to other developing countries, including China and countries of East and South-East Asia. A large section of India's population and work force is therefore going to remain rural for the next few decades. Such employment generation is critical to improving the well-being of rural populations[8].

Mobility is an important consideration in the nature of social systems as a whole, as in the, comparison of class, caste and occupation (Hall, R.H, 1969:31). It is usually approached from a number of dimensions. These are, Firstly the time phase mobility, here intergenerational mobility can be distinguished from intra-generational mobility even though two forms can exist simultaneously for individuals and collectives. The second dimension involves direction; three separate but often related directional axis can be identified. The most commonly analyzed is vertical mobility, o that is movement up or down within the stratification system. A second axis is a change in social function that does not involve a change in status, or horizontal mobility. The third axis is spatial mobility which plays an important role in inter-generational and intra-generational mobility[9].

Objectives

1. To assess the economic profile of the fishermen in Alappuzha.
2. To identify the factors that accounted for factors that hinder occupational mobility.

Significance of the study

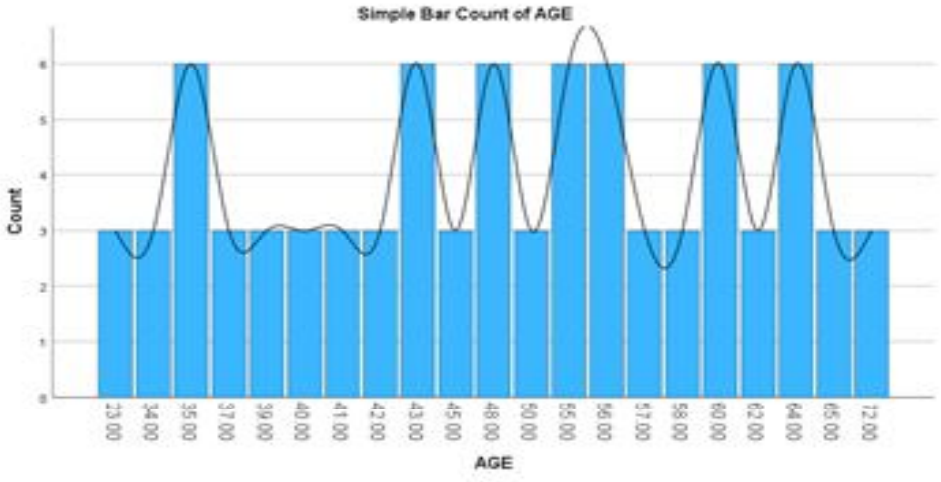
A worker's ability to experience upward occupational mobility generally results from favourable events such as the acquisition of additional human capital, or from intangible factors such as motivation or luck. A second possibility for occupational advancement may be the workings of the internal labour market. [10]The factors that lead to downward occupational mobility are less well-developed, but include such things as structural change in the labour market (for example, a declining industry), a voluntary change in career, or the atrophy and obsolescence of labour market skills. In any event, occupational mobility can best be measured by tracking individuals over time.

Methodology of the study

The study is concerned with Alleppy which is the highest fishermen populated district. Both primary and secondary sources provide data for the collection. Primary data aregathered via a survey and a structured interview schedule. Books, Government documents, journals, and census data are used as a secondary information. The analysis of empirical data in the research comparative viewpoint on the professions' mobility. Simple random method is used to collect the data.

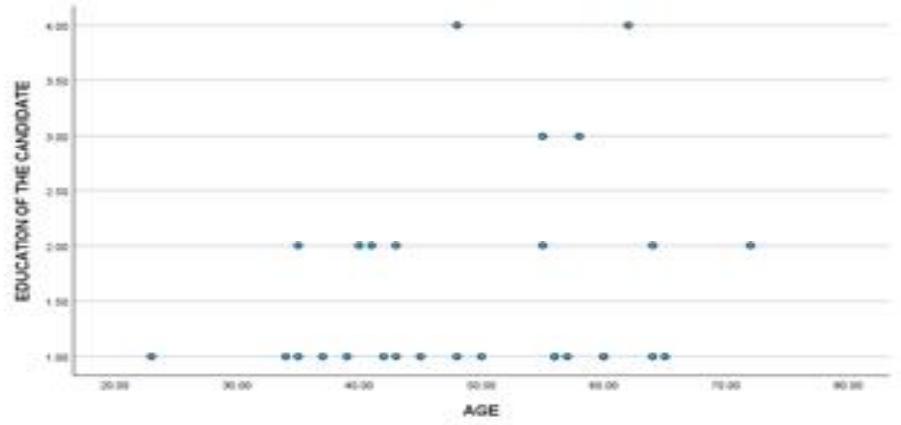
Analysis of the study

Figure :1 - Age wise category of the respondents:



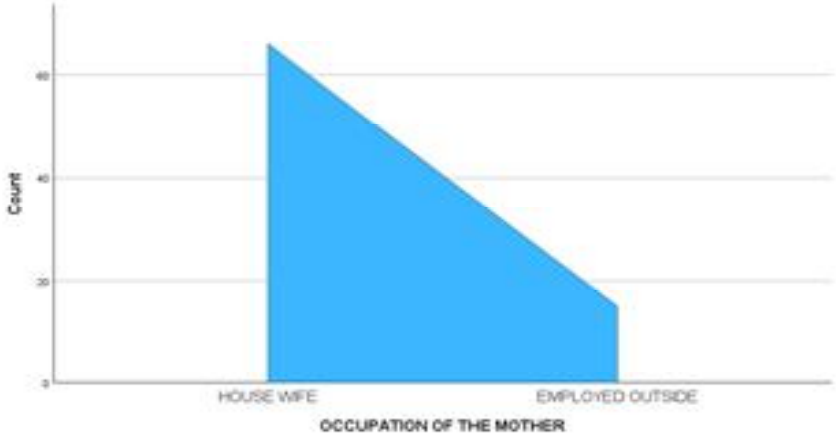
The majority of the respondents belong to the age group of 23 to 72 and among them the highest number of persosns belonged to the age group of 35, 43, 55,60 and 64 which include 42% of the respondents.

Figure : 2 - Educational qualification



Among the respondents majority belonged to the group of below SSLC (26.9%) and 30% belonged to the group of above SSLC. 38% have completed SSLC. Access to education is restricted to fisheries community due to insufficient income and the social situations. There is also an emerging trend which shows that the lower age group category have access to education.

Figure :3 - Women work participation



Considering the women work participation in the fishing community, the survey depicts that 86 % of women are house wife and they do enter in to any field of income generation. Only a few percentage (6%) women are engaged in the coir making and a few percentage is engaged in self-employment.

Education of the children:

Table: 1 - Education of the children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GOVERNMENT SCHOOL	48	57.1	57.1	57.1
	AIDED SCHOOL	33	39.3	39.3	96.4
	PRIVATE SCHOOL	3	3.6	3.6	100.0
	Total	84	100.0	100.0	

Out of the total respondents 50% of their children study in Government school since they cannot effort to access high quality education in the private schools. 4% of a minor section send their children to private school and 46.2% of the population send their children to aided schools which will provide them with quality education. It is visible that the children of the fishermen community are encouraged to study well so as to help them find a better job opportunity than the fisheries sector.

Table: 2 - Occupation of the children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GOVERNMENT	6	7.1	7.4	7.4
	PRIVATE COMPANY	39	46.4	48.1	55.6
	SELF EMPLOYED	36	42.9	44.4	100.0
	Total	81	96.4	100.0	
Missing	System	3	3.6		
Total		84	100.0		

As it is depicted in the diagram majority of the fishing people's children engage themselves in entrepreneurial works and only a 7% of the children have secured government job. They are deprived of a better safe life due to lack of educational and competency. 42.3% of the children of fishing community engage themselves in private company and are at times exploited by the rich community.

Table : 3 - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DUCATION OF THE CHILDREN	84	1.00	3.00	1.4643	.56922
OCCUPATION OF THE CHILDREN	81	1.00	3.00	2.3704	.62138
Valid N (listwise)	81				

- The mean represents the average value of the dataset.

Education of the Children: The mean value is 1.4643, suggesting that on average, the education level of the children falls between categories 1 and 2 (if the variable is categorical, 1 could correspond to lower education, and 2 to higher education).

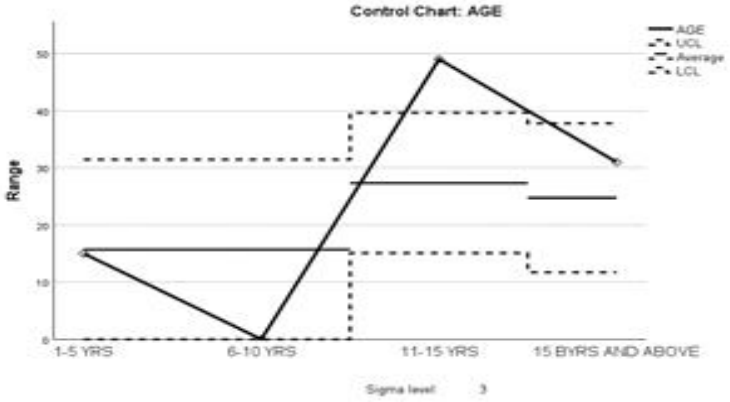
Occupation of the Children: The mean value is 2.3704, indicating that the occupation level of the children tends to fall closer to category 2 or 3 (possibly indicating mid-level occupations).

Standard error of mean

This statistic estimates the variability of the sample mean. A smaller standard error indicates a more precise estimate of the population mean.

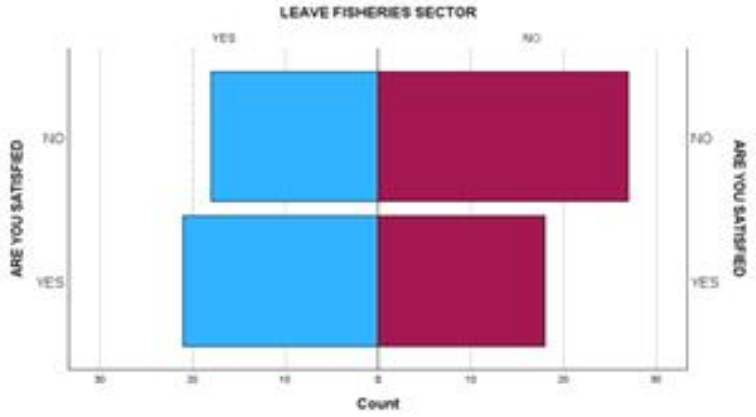
For **Education of the Children,** the standard error of the mean is **0.06211**, which is relatively small, implying a precise estimate of the average education level. For **Occupation of the Children**, the standard error is **0.06904**, also small, suggesting good precision for the occupation mean estimate

Figure : 4 - Experience in the fisheries sector



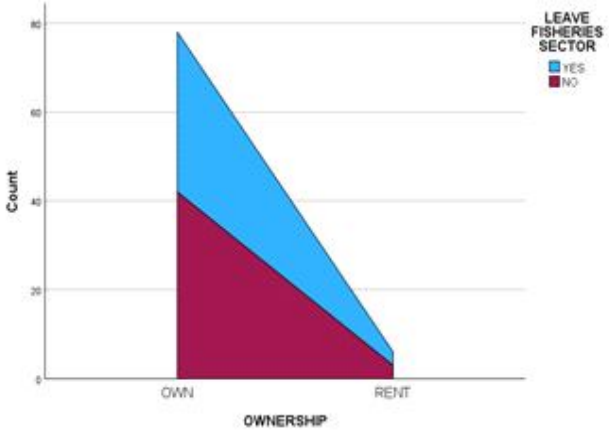
From the diagram it is visible that 69.2% respondents have more than 20 years of experience in the fishing field and only there are a few percentage with 6-10 years of experience and 26.9% with 11-15 years of fishing experience. It clearly state that the younger generations are reluctant to come to the fishing field due to various reasons which will be enlisted later.

Figure 5 - Satisfaction level



The evaluation of the satisfaction level in the fishing filed is depicted in the diagram. 65.4% of the respondents are satisfied with the fisheries sector and 34. 6% of the people are not satisfied with the fisheries sector. This may be due to the seasonal employment, low investment and high income accessibility during the seasonal work. However the elder generation are reluctant to forgo their traditional employment in which they have experiential knowledge.

Figure: 6 - Housing and financial status



The analysis regarding the ownership of the house clearly state that 92.3% of them have their own house and only 7.7% of minor section live in rented house. This represent that though fisheries sector is not well appreciated the seasonal work help them to settle their life well and their livelihood is supported by the fisheries sector.

The analysis states that the 42% of fishermen do not have any loan in their name and have a tension free life. But it is very important to note that 26% of them do have a loan of more than 5 lakh rupees. Fishermen who depend on the sea and seasonal work will have to sweat their blood in order to pay back the loan. There are people of 30.8% who have loan between 1-5 lakhs.

Willingness for occupational mobility

Table : 4 - Correlations

		LEAVE FISHERIES SECTOR	FISHERIES AID
LEAVE FISHERIES SECTOR	Pearson Correlation	1	-.020
	Sig. (2-tailed)		.858
	N	84	84
FISHERIES AID	Pearson Correlation	-.020	1
	Sig. (2-tailed)	.858	
	N	84	84

In terms with the objective of the study the question was asked whether they are willing to quit their fisheries sector. The answer from 34.6% is that they have the desire and the willingness to quit the job but the rest of 65.4% of them replied that though there are difficulties and limitations for their job they are not willing to quit it. The occupational mobility is a matter of necessity and decision making.
The correlation table provides a statistical analysis of the relationship between two variables: **leave fisheries sector** and **fisheries aid.** Here's the explanation:

Pearson Correlation Coefficient:

- The value of the **Pearson Correlation** between the two variables is -**0.020.**
- This indicates a very weak and negligible negative relationship between the two variables. A value close to 0 implies no significant correlation.

Significance (Sig. 2-tailed):

- The p-value (Sig. 2-tailed) is 0.858, which is much higher than the conventional significance level of 0.05.

- This means the relationship is not statistically significant. In other words, there is no evidence to suggest a meaningful connection between leave fisheries sector and fisheries aid in this datas.

The results show that FISHERIES AID does not have a statistically significant effect on whether individuals leave the fisheries sector. The negligible correlation and high p-value suggest that these two variables are independent in this context.

Table: 5 - Reason to leave fisheries sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DANGER	12	14.3	14.3	14.3
	NO PROFIT	66	78.6	78.6	92.9
	NO GOVT INSURANCE	6	7.1	7.1	100.0
	Total	84	100.0	100.0	

Table : 6 - Reason to leave fisheries sector

	Valid	84
	Missing	0
Skewness		-.279
Std. Error of Skewness		.263
Kurtosis		1.752
Std. Error of Kurtosis		.520

When asked for the reason to quit the fisheries sector the answer was: 46% of them were of the response that they are not satisfied with the sector. 15.4% opined that the fisheries sector involves a lot of risk factor. 38.5% of them were of the opinion that they cannot get the income as expected since this is a seasonal job. Hence the occupational mobility depent on the decisions made by the fishermen of their choice.

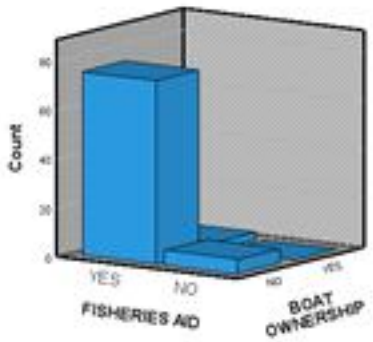
Skewness quantifies the distribution's asymmetry. A distribution that is sufficiently symmetric is indicated by a value near zero. A small tail on the left is shown by the slight negative skew (-0.279), suggesting that more individuals may have slightly biased motives toward higher values. The significance of the skewness will be assessed with the aid of the standard error of skewness (0.263). It is possible that the distribution is still fairly balanced because the skewness value is near zero. Kurtosis (1.752): "Tailedness" of the distribution is measured by kurtosis. The kurtosis of a normal

distribution is zero. In contrast to a normal distribution, the positive kurtosis (1.752) indicates a distribution with heavier tails or a more peaked shape. Kurtosis standard error (0.520): This shows if there is a considerable deviation from zero in the kurtosis. Considering the kurtosis.

Table : 7 - Ownership of boat

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
FISHERIES AID	84	1.00	2.00	1.0714	.25909	3.389	.263	9.716	.520
BOAT OWNERSHIP	84	1.00	2.00	1.9643	.18669	-5.095	.263	24.544	.520
Valid N (listwise)	84								

Figure: 8



Regarding the question whether they own the fisheries boat of their own the reply was that on 4% of them has their own boat and the rest 96% depend on neighbours, relatives and friends for their livelihood. Hence they are deprived of earning an income equal to the effort that they have put in. occupational mobility can be articulated only when the people are confident enough that they can make things happen with their own effort.

The annual fisheries report of 2022-23 clearly states that a lot of fund has been allocated for fisheries and still a percentage of fishermen was of the opinion that the government pool enough money in to the economy and whether it reaches the deserving hands. Measures should be undertaken for the same.

Conclusion

In order to ensure efficient plan execution and refinement, the vision 2047 places a strong emphasis on a "Whole of Government" strategy that involves collaboration across a variety of sectors, including state governments, academics, and industry leaders. In order to get feedback and promote agreement on national priorities, public consultations are being held. Even though Vision India 2047 has lofty goals, there are still a lot of obstacles to overcome, including the risk of becoming mired in a middle-class trap, the need to improve infrastructure, and the need to close the gap between urban and rural areas. Furthermore, maintaining strong growth rates will be essential to reaching these challenging economic goals.

With a focus on the welfare of fishermen and the long-term viability of the fishing industry, Vision 2047 seeks to increase fish production and encourage sustainable development in the field.This vision calls for goals including increasing fisheries through science, raising the earnings of fishermen, and guaranteeing food supply and nutritional security through sustainable methods.

The government has implemented a number of programs and policies under Vision 2047 to enhance the standard of living for fishermen. These tactics center on executing the Blue Revolution, which aims to improve governance and productivity in the fisheries industry, encouraging participation in policy creation, and improving fish production through sustainable methods.

[11]A lack of skills, a lack of opportunity, and age-related apathy all have an impact on the current status of occupational mobility among fisherman. There is a discernible tendency of both upward and downward mobility, with younger fishermen frequently abandoning conventional fishing as a result of reduced earnings and increased living expenses brought on by variables including shifting market conditions.

■

(Smt. Shine Brijit, Assistant Professor, Department of Economics, St. Teresa's College, Ernakulam & Research Scholar, Department of Economics Sree Sankara College, Kalady), Dr. Gigi Elias, Assistant Professor & Research Guide, St. Peters's College, Kolanchery)

End Notes

1 https://www.drishtiias.com/daily-updates/daily-news-editorials/vision-india-2047-transforming-the-nation-future

2 Anon, (2006) *"Annual Report 2005-2006"* CMFRI, Cochi.

3 Ayyappan S. and M.Krishnan ,(2004) *Indian fisheries: dimensions of development*, Indian Journal of Agricultural Economics, July-September 2004, 59(3) : 391-41.

4 Bheemeshwar Reddy and Madhura Swaminathan, (2004), *Intergenerational Occupational Mobility in Rural India*: Evidence from Ten Villages, Review of Agrarian studies.

5 Blanden, J., Gregg, P., & Macmillan, L. (2007). *Accounting for intergenerational income persistence: Non-cognitive skills, ability and education* (CEP Discussion Paper No. 0731). Centre for Economic Performance, London School of Economics.

6 Hancock, L. (2007). *Social exclusion and the capabilities approach: Evidence from social policies in Australia. Social Work Review,* 49(2), 41-52.

7 Motiram, S., & Singh, A. (2012). How close does the apple fall to the tree? *Some evidence on intergenerational occupational mobility from India.* Review of Income and Wealth, 58(3), 454-481.

8 Mehrotra, S., & Parida, J. K. (2019). *Why is the labour force participation of women declining in India*? World Development, 111, 1-17.

9 Hall, R. H. (1969). *Occupations and the social structure.* Englewood Cliffs, NJ: Prentice-Hall,31.

10 Census of India, 2001

11 loksabhadocs.nic.in/Refinput/New_Reference_Notes/English/16012024_112431_102120474.pdf

References

Anon. (2006). Annual report 2005-2006. CMFRI, Cochin.

Ayyappan, S., & Krishnan, M. (2004). Indian fisheries: Dimensions of development. Indian Journal of Agricultural Economics, 59(3), 391-401.

Bheemeshwar Reddy, & Swaminathan, M. (2004). Intergenerational occupational mobility in rural India: Evidence from ten villages. Review of Agrarian Studies.

Blanden, J., Gregg, P., & Macmillan, L. (2007). Accounting for intergenerational income persistence: Non-cognitive skills, ability and education (CEP Discussion Paper No. 0731). Centre for Economic Performance, London School of Economics.

Census of India. (2001). Census of India 2001. Government of India.

Hall, R. H. (1969). Occupations and the social structure. Prentice-Hall.

Hancock, L. (2007). Social exclusion and the capabilities approach: Evidence from social policies in Australia. Social Work Review, 49(2), 41-52.

Lok Sabha Secretariat. (2024). Reference note: Vision India@2047. https://loksabhadocs.nic.in/Refinput/New_Reference_Notes/English/16012024_112431_102120474.pdf

Mehrotra, S., & Parida, J. K. (2019). Why is the labour force participation of women declining in India? World Development, 111, 1-17. https://doi.org/10.1016/j.worlddev.2018.06.003

Motiram, S., & Singh, A. (2012). How close does the apple fall to the tree? Some evidence on intergenerational occupational mobility from India. Review of Income and Wealth, 58(3), 454-481. https://doi.org/10.1111/j.1475-4991.2011.00466.x

Parliament of India. (2024). Vision India @2047: Transforming the nation's future. https://www.drishtiias.com/daily-updates/daily-news-editorials/vision-india-2047-transforming-the-nation-future

GULATI INSTITUTE OF FINANCE AND TAXATION

GST Updates

Meenu Mohan

Several initiatives for modifying formats: Enhancing data accuracy and compliance

Several changes were introduced which impacted registration, compliance, and e-documentation. The formats for GSTR-7 (TDS) and GSTR-8 (TCS by E-Commerce Operators) have been revised. These new formats now mandate more detailed, invoice-wise reporting. This change is intended to enhance data accuracy and compliance. The government has confirmed that no GST is levied on UPI transactions, even for those exceeding INR 2,000. It has been reiterated that GST is only applicable to payment-related charges such as the Merchant Discount Rate (MDR). It is also important to note that MDR has been zero for Person-to-Merchant (P2M) UPI transactions since January 2020. From June 1, 2025, the Invoice Reporting Portal (IRP) will treat invoice and document numbers as case-insensitive for IRN generation. The system will automatically convert these numbers to uppercase. This change aims to prevent duplication and ensure alignment with GSTR-1. Additionally, starting April 2025, the values in Table 3.2 of GSTR-3B, which pertains to inter-state supplies made to unregistered persons, composition taxpayers, and UIN holders, will be auto-populated and non-editable. This adjustment makes accurate reporting in GSTR-1, GSTR-1A, or IFF crucial for any necessary corrections.

I. GST Collection of India during the first quarter of the financial year 2025-26

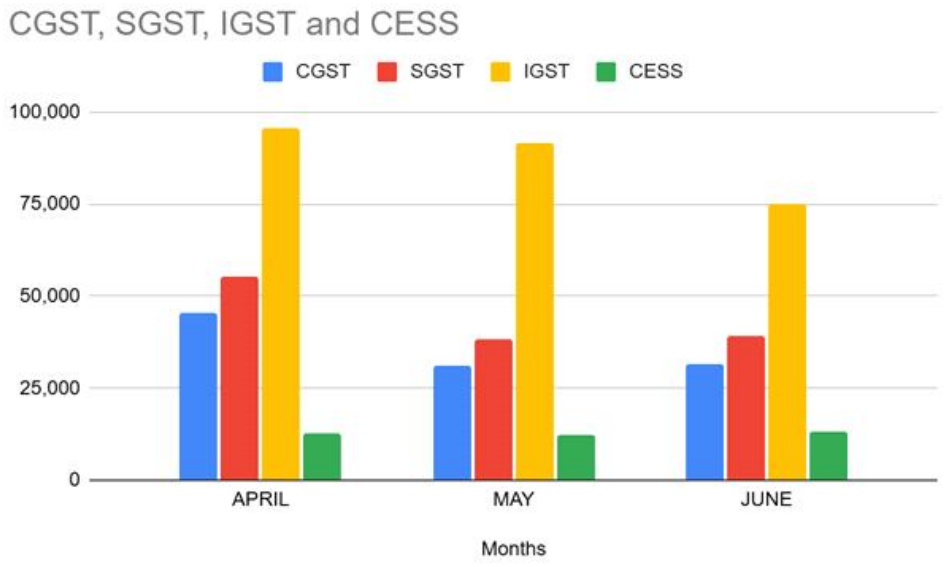
Gross GST collections for April 2025 stood at Rs. 2.36 lakh crore, marking a 12.6% increase over the gross collection of Rs.2.10 lakh crore in April 2024 and the net GST collections for the April 2025 reached Rs.2.09 lakh crore, reflecting a 9.1% growth compared to the net collection of Rs.1.92 lakh crore in April 2024. May 2025 GST collection is Rs.2,01,050 crores. May 2025 collection has dropped down as compared to the April 2025 GST collection which was Rs.2,36,716 crores.

The monthly gross GST collection (total gross GST revenue) for June 2025 shows a growth of only 6.2% compared to June 2024 when it was Rs.1,73,813 lakh crore.

Table 1: GST collection of India from April 2025- June 2025 (RS in crores)

Months	CGST	SGST	IGST	CESS
APRIL	45,401	55,525	95,688	12,762
MAY	31,191	38,511	91,677	12,462
JUNE	31,364	39,395	75,219	13,128

Chart 1: Comparison of GST revenue of April- June 2025



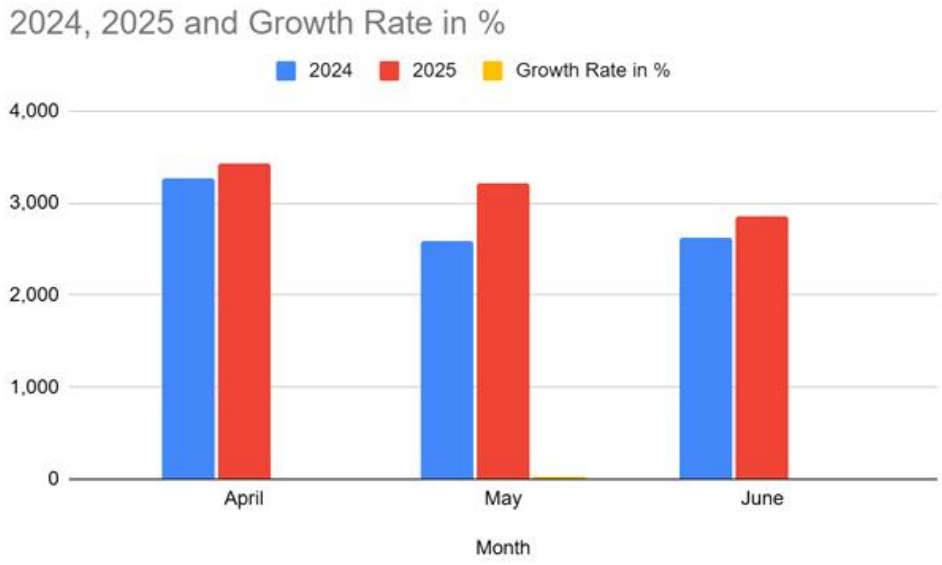
II. GST revenue in Kerala

When compared to the GST revenue in the last year, the April month revenue of Kerala increased to 5%. At the same time, 24% year-on-year growth in gross GST collections reported for May 2025. The GST collection in June 2025 marked a 9 per cent year-on-year growth compared to June 2024.

Table 2: GST revenue of Kerala from April - June of 2024 and 2025 and growth rate

Month	2024	2025	Growth Rate in %
April	3,272	3,436	5
May	2,594	3,210	24
June	2,618	2,856	9

Chart 2: GST revenue of Kerala from April-June 2025 in comparison with the same period in the previous year.



III. Important updates in GST

Clarification on Invoice-wise Reporting Functionality in Form GSTR-7 on portal

Vide Notification No. 09/2025 - Central Tax dated 11.02.2025, Form GSTR-7 has been amended to capture invoice-wise reporting with effect from 01.04.2025 i.e. the return period for April 2025 onwards. For the enhanced functionality, the tax payers have to follow the changes after the implementation of invoice-wise reporting in Form GSTR-7 in the GST portal.

Clarification on refund filing process for various refund categories

GSTN has been made important changes in the refund filing process under the following categories:

(a) Export of Services with payment of tax

(b) Supplies made to SEZ Unit/SEZ Developer with payment of tax

(c) On account of Refund by Supplier of Deemed export

For the above refund categories, the requirement to select a specific tax period ('From' and 'To') while filing refund applications has been removed. The taxpayers can now directly proceed with selecting the refund category as above and clicking on "Create Refund Application."The said refund categories are changed from 'Tax Period based filing' to 'Invoice based filing'.

Clarification on refund filing process for recipients of deemed export

GSTN has made the following changes in the refund filing process under the category "On account of Refund by Recipient of deemed export":

1. Refund applications under this category no longer need to be filed in chronological order of Tax Period which means Taxpayers are not required to select "From Period" and "To Period" while filing refund applications.
2. Taxpayers must ensure that all the returns (GSTR-1, GSTR-3B etc) due till the date of refund application, are filed.
3. Under the aforementioned category, the table "Amount Eligible for Refund" has been modified. The columns of the revised table are explained hereunder:
    a. Col. 1 'Balance in ECL at the time of filing of refund application'. This column will reflect the balance available under various Head in Electronic Credit Ledger at the time of filing of application. It will be auto populated.
    b. Col. 2 'Net Input Tax Credit (ITC) of Deemed Exports (as per uploaded invoices)', in this column the amount of claimed ITC, under respective major Heads will be auto populated based on invoices furnished in Statement 5B.
    c. Col. 3 'Refund amount as per the uploaded invoices' reflects the sum of the amount of ITC claimed under all major Heads (IGST/CGST/ SGST/UT) as per the invoices uploaded by the taxpayer in Statement 5B and shall be downward editable.

d. Col. 4 'Eligible Refund Amount'. In this column, the maximum amount of ITC which is available for refund claim will be auto populated. It will be auto-calculated based on the order of debit specified in Circular No. 125/44/2019-GST dated 18.11.2019.

e. Col. 5 "Refund amount not eligible as insufficient balance in the ECL (5)". This column reflects the difference between the total amount of claimed ITC and the total amount of ITC available in the Electronic credit Ledger under various major Heads.

Clarification on barring of GST return on expiry of three years

As per the Finance Act,2023 (8 of 2023), dt. 31-03-2023, implemented w.e.f 01-10-2023 vide Notification No. 28/2023 - Central Tax dated 31th July, 2023, the taxpayers shall not be allowed file their GST returns after the expiry of a period of three years from the due date of furnishing the said return under Section 37 (Outward Supply), Section 39 (payment of liability), Section 44 (Annual Return) and Section 52 (Tax Collected at Source). These Sections cover GSTR-1, GSTR 3B, GSTR-4, GSTR-5, GSTR-5A, GSTR-6, GSTR 7, GSTR 8 and GSTR 9.

As a result, after three years, the aforementioned returns will no longer be eligible for filing. Beginning with the July 2025 tax period, the aforementioned restriction will be applied on the GST portal. As a result, taxpayers are once more urged to reconcile their records and, if they haven't already, file their GST returns as soon as possible.

Clarification regarding filing of SPL-01/ SPL-02 where payment made through GSTR 3B and other cases

Under Section 128A of the CGST Act, 2017, certain taxpayers have been experiencing technical difficulties with the auto-population of payment details in Table 4 of Form SPL-01 or SPL-02 when submitting amnesty applications. In particular, it has been observed that in certain instances, the payments details may not be accurately auto-populated in the applications filed by the taxpayers:

(a) Amount paid through "payment towards demand order" functionality

(b) Pre-deposit amount details

(c) Payment made through GSTR 3B

In the aforementioned situations, taxpayers are encouraged to move on with submitting a waiver application because the GST portal does not prevent them from doing so in the event that the demand amount and payment information do not match. In such situations, the tax payers have to upload the relevant

payment information as attachments along with the online application for the verification by the jurisdictional officer.

Introduction of enhanced inter-operable services between E-Way bill portals

On July 1, 2025, NIC will introduce the new E-Way Bill 2.0 portal, which will include improved interoperable E-Way Bill functions (https://ewaybill2.gst.gov.in). The purpose of the portal is to improve interoperability between the new portal and the current E-Way Bill 1.0 Portal (https://ewaybillgst.gov.in). The new E-Way Bill 2.0 portal has been developed in response to taxpayers' demands for continuity in services during exigencies. It enables cross-portal access to critical E-Way Bill functionalities, ensuring seamless operations for taxpayers and transporters.

The following additional services will be available on the E-Way Bill 2.0 portal for E-Way Bills generated on either portal (E-Way Bill 1.0 or E-Way Bill 2.0):

a) Generation of E-Way Bill based on Part-A details entered by the supplier

b) Generation of Consolidated E-Way Bills

c) Extension of validity of E-Way Bills

d) Update of transporter details

e) Retrieval of consolidated E-Way Bills

These services are in addition to the currently available cross-functional services:

a) Generation of E-Way Bills

b) Updating of vehicle details

c) Printing of E-Way Bills

Both portals will operate on a real-time synchronised architecture and in the event of a technical issue or downtime on the E-Way Bill 1.0 portal, taxpayers may perform all necessary operations (e.g., updating Part-B) on the E-Way Bill 2.0 portal and carry the E-Way Bill slip generated therefrom. This dual-system approach is designed to eliminate dependency on a single portal and ensure business continuity. In addition to the online portal interface, APIs will be used to provide taxpayers and logistics operators with access to all of the aforementioned services. For testing and integration purposes, these APIs are presently housed in a sandbox environment.

Data from the E-Way Bill1 and E-Way Bill2 portals will eventually be automatically connected and amalgamated, removing the need for the E-Way Bill1 system in emergency situations. The E-Way Bill2 portal is made to instantly synchronize E-Way Bill information with the main portal.

Updates made to E-Way Bills created on the E-Way Bill1 portal can be made on the E-Way Bill2 portal, and vice versa. Crisscross operations between the two portals are completely enabled. Both versions of the E-Way Bill slip may be carried in accordance with the updated Part-B details of E-Way Bills created on the E-Way Bill1 portal in the event that the main portal is unavailable for technical reasons.

Filing pending returns before expiry of three years

As per the Finance Act,2023 (8 of 2023), dt. 31-03-2023, implemented w.e.f 01-10-2023 vide Notification No. 28/2023 - Central Tax dated 31th July, 2023, the taxpayers shall not be allowed file their GST returns after the expiry of a period of three years from the due date of furnishing the said return under Section 37 (Outward Supply), Section 39 (payment of liability), Section 44 (Annual Return) and Section 52 (Tax Collected at Source). These Sections cover GSTR-1, GSR-1A, GSTR 3B, GSTR-4, GSTR-5, GSTR-5A, GSTR-6, GSTR 7, GSTR 8 and GSTR 9 or 9C.

Hence, above mentioned returns will be barred for filing after expiry of three years. The said restriction will be implemented on the GST portal from August 2025 Tax period. Which means any return for which the due date was three years back or more and has not been filed till August Tax period will be barred from Filling. In this regard an advisory was already issued by GSTN on October 29th, 2024

Illustration : For ease of reference and better clarity, the latest GST returns that will be barred from filing w.e.f 1st September 2025 are detailed in the table below:

GST Forms	Barred Period (w.e.f. 1st September 2025)
GSTR-1Q	April-June 2022
GSTR-3B/M	July-2022
GSTR-3BQ	April-June 2022
GSTR-4	FY 2021-22
GSTR-5	July-2022
GSTR-6	July-2022
GSTR-7	July-2022
GSTR-8	July-2022
GSTR-9/9C	FY 2020-21

Hence, the taxpayers are once again advised to reconcile their records and file their GST Returns as soon as possible if not filed till now.

Upcoming security enhancements

The GST System continues to be enhanced to provide transparency for taxpayers and strengthen data security. As part of this endeavor, the enhancement listed below will soon be implemented to give taxpayers who use Application Suvidha Providers (ASP) to interface with the GST System transparency and control. The ASP makes use of GST Suvidha Providers (GSP), who are authorized API channel partners for the GST System. A GSP's job is to facilitate API access between the ASP and the GST System.

1. When an OTP consent access is successfully granted by the taxpayer to the ASP, the taxpayer is notified via email and SMS. When ASP successfully gets the taxpayer's authorized signatory's consent to access their data through APIs by requesting an OTP from the GST System, they will be notified by email and/or SMS. The following information would be included in the notification:

- Name of the ASP and the underlying GSP
- Date and Time of the OTP Consent
- Validity Period of the consent

2. The GST Common Portal is being further enhanced to provide view of current & historic access gained by ASP / GSP and enable taxpayers with an option to revoke any active consent. The taxpayer shall be able to access this after logging to their GST Common Portal dashboard.

IV Circulars in the month of April to June 2025

Generation and quoting of Document Identification Number(DIN) on any communication issued by the officers of the Central Board of Indirect Taxes and Customs (CBIC) to tax payers and other concerned persons.

Board's Circular No. 122/41/2019- GST dated 05thNovember 2019 and 128/47/2019-GST dated 23.12.2019, which were issued for implementation of decision regarding the Generation and Quoting of DocumentIdentification Number (DIN), initially on specified documents and subsequently expanded to all communications (including e-mails) sent to taxpayers and other concerned persons by any office of CBIC. This was done with a view to leverage technology for greater accountability and transparency in communications with the trade/ taxpayers/ other concerned persons. The Board came to notice that the documents and summary generated

through the common portal of GST always bear a ReferenceNo. (RFN), which is verifiable through the portal(a t https://services.gst.gov.in/services/verifyRfn). On verification, the portal provides details of the document such as Date of RFN generation, Date of issuing the Document, Module, Type of Communication and Name of the Office issuing theDocument. Reference, in this regard, is also invited to Section 169(1)(d) of the CGSTAct, 2017, which provides that any decision, order, summons, notice or other communication shall be served by making it available on the common portal.Further vide Instruction No. 4/2023-GST dated 23.11.2023, CBIC emphasised on strict compliance of rule 142 of CGST Rules and directed to ensure that summary of Show Cause Notices in Form GST DRC-01 and summary of theOrder-in-Original in Form GST DRC-07 should be served electronically on commonportal / uploaded electronically on the common portal. In light of the above, quoting DIN on such communications generated through the common portal of GST, which already bear RFN, results in two different electronically generated verifiable unique numbers namely RFN & DIN on the same communication, which renders quoting of DIN on such communication unnecessary.

Source: Circular No.249/06/2025-GST Dated 09-June-2025

Notification on Reviewing authority, Revisional Authority and Appellate Authority in respect of orders passed by Common Adjudicating Authority (CAA) for show cause notices issued by DGGI

The CBIC, vide Circular No. 250/07/2025-GST dated 24th June 2025, has clarified the procedure for review, revision, and appeal in respect of Orders-in-Original (O-I-Os) passed by Common Adjudicating Authorities (CAA), i.e., Joint/Additional Commissioners appointed for adjudicating SCNs issued by DGGI. It has been clarified that the Principal Commissioner or Commissioner of Central Tax under whom the CAA is posted shall act as the Reviewing Authority under Section 107 and the Revisional Authority under Section 108 of the CGST Act, 2017.

Further, any appeal against the O-I-O passed by such CAAs shall lie before the Commissioner (Appeals) having territorial jurisdiction over the Principal/ Commissioner of Central Tax under whom the CAA is posted, as per Table III of Notification No. 02/2017-Central Tax. The Principal Commissioner/ Commissioner shall also be responsible for representing the department in appellate proceedings and may designate a subordinate officer for filing appeals. Before proceeding with review or revision, the authority may seek comments from the concerned DGGI formation.

Source: Circular No.250/07/2025-GST Dated 24-June-2025

Sources

www.gst.gov.in

https://cbic-gst.gov.in/

https://www.taxmann.com/

https://www.taxmanagementindia.com/

https://cleartax.in/

■

(Dr. Meenu Mohan, Assistant professor, Gulati Institute of Finance and Taxation Thiruvananthapuram)

New Studies on Kerala

Young Scholars' Forum, GIFT
Led by Jubairiya P M and Vandanan S

Investment, Finance, and Financial Institutions

Scopus indexed

1.Asok, A. R., & Cox, J. (2025). 'Inclusivity' in Welfare-Oriented Microfinance: Lessons From Kudumbashree in Kerala, India. Journal of Alternative Finance, 2(2), 174-194.

This study examines the inclusivity of Kudumbashree, a welfare-oriented microfinance initiative in Kerala, India, by analysing non-participation through the lens of social exclusion. Using quantitative data from 678 rural poor households, complemented by in-depth interviews and focus group discussions, the research finds that despite the programme's financial and non-financial benefits, women from the most marginalised backgrounds face barriers leading to passive or implicit exclusion. A positive link between participants' debt attitudes and continued engagement underscores the role of financial incentives in retention. The paper highlights a paradox wherein policies aimed at reducing social exclusion may inadvertently reinforce it through institutional exclusion shaped by design-stage conditions, operational enforcement, and individual limitations. Policy recommendations include targeted awareness sessions to strengthen group solidarity and team cohesion, thereby enhancing participation in welfare-oriented microfinance programmes.

Scopus-Indexed

Book chapter

1.M.D. Parvathy, Dayana Das, N. Ajithkumar (2024). Unravel the DFL Level Among Nationalized Bank Women Employees in Kerala

The rapid expansion of digital financial services, intensified by recent global crises, has made digital financial literacy (DFL) essential for informed financial decision-making and economic well-being. This study assesses the level of DFL among 384 women employees from a population of 15,158 in nationalized banks across Kerala. The findings reveal a generally high level of DFL, reflecting strong adaptability among participants. However, gaps remain in areas such as service knowledge, self-determination, financial

behavior, attitude, and overall financial knowledge. Using mean percentage scores for analysis, the study highlights the need for targeted strategies to further enhance DFL. As digital finance continues to evolve, strengthening DFL is vital for empowering individuals in a dynamic economic environment.

Other articles

1.Ajay Pratap Singh, Adya Pandey (2025). From Constitution to Practice: Examining Financial Autonomy of Panchayati Raj Institutions

The self-governing financial capabilities of the Panchayati Raj Institutions (PRIs) are fundamental to the local governance system in India and have a bearing on the functioning of democracy at the grassroots level. PRIs were set up under the 73rd amendment of the Indian constitution in 1992 to enable self-governance at the local level so that the people can actively partake in development processes. This paper analyzes the constitutional provisions relating to the financial autonomy of PRIs, the obstacles to achieving true financial autonomy, and the ramifications of these obstacles on local Governance.

2.Binny and Chacko (Entrepreneurial Challenges in a Southern Indian State: Exploring Financial Awareness, Credit Access and related Barriers to Entrepreneurship

This study explores the challenges and opportunities faced by entrepreneurs in Kerala by analyzing survey data from 310 respondents. It focuses on critical areas such as financial awareness, access to credit, and procedural barriers. The findings reveal low entrepreneurial awareness-only 30.49% of women and 57.98% of men are aware of business procedures. Just 18% have attempted entrepreneurship, often hindered by limited credit access and bureaucratic delays. Despite 46% perceiving improvements in the business climate, systemic issues like job security preference, gender disparities, and political instability persist. These factors contribute to perceived financial risks, shaping entrepreneurial behavior and limiting growth. The study emphasizes the need for targeted awareness programs, streamlined procedures, and greater institutional support to foster a more inclusive and dynamic entrepreneurial ecosystem in Kerala. It concludes with key recommendations for policymakers to enhance public awareness, reduce barriers, and strengthen the state's business environment.

Society and Culture

Scopus indexed

1.Harikrishnan, S. (2025). Which god's own country? A spatial history of Hindu-Christian tensions in modern Kerala. Commonwealth & Comparative Politics, 1-20.

Kerala has long resisted the ambitions of the Bharatiya Janata Party in India; a state where despite a large grassroots presence of the Sangh Parivar, the BJP has enjoyed little

electoral success. Previous scholarship has attributed this to the peculiar demography in Kerala which makes it difficult to consolidate Hindu sentiment, or to a 'secular political culture' nurtured by the socio-religious reform movements and the strong presence of communism. In recent years, the BJP in Kerala has tried to remedy this through outreach to Christian communities to position them as allies against a common 'Muslim other'. This article looks at Hindu-Christian encounters from the nineteenth century to the present to argue that these attempts can be read productively as rhetorical and strategic. Through an analysis of key incidents, I argue that historically, advocates of Hindutva forces have considered Kerala to possess a 'sacred geography' for Hindus, where other identities are seen as invasive.

2.Piyus, G. (2025). Literary child subjects and childhoods in Kerala: Agency and intersections in the late 20th century. Global Studies of Childhood, 15(2), 179-190

The paper examines the role of literature set in late 20th-century Kerala, India, at the intersections of class and gender, in establishing and propagating new ideals for children and childhood. During this period, Kerala gained recognition from the UN for its Kerala Model of Development, which positioned the state at the forefront of Human Development Indexes within a post-colonial country like India. Simultaneously, this era witnessed the introduction of children's rights, based on the Western model, into a society where the legacy of colonialism had shaped various contours of modernity. Accordingly, children and childhood of the newly emerged middle class became significant within the developmental rhetoric of Kerala. The paper explores how the literary representation of these middle-class children and their childhood in selected Malayalam literature from Kerala reflects and caters to the construction of the agency a child should possess in a developing society. The paper argues that through the domestication and feminization of childhood, these representations contributed to constructing a hegemonic model of middle-class childhood that emphasized the 'becoming' child, which gradually set the standard in Kerala society at the time. Despite being situated within the discursive practices of modernity, the literature produced during this period remained constrained by the astronomative ideals of society.

3.Kumar, S. (2025). Care Integrated into the Social Fabric: Palliative Care in Kerala. In: Handbook of Aging, Health and Public Policy. Springer, Singapore.

Palliative care addresses the suffering associated with terminal illness, aging, and end-of-life experiences. While globally underprovided, Kerala has emerged as a model for community-based palliative care, integrating health services deeply into the social fabric. Over the past 25 years, Kerala's approach has evolved from institution-led programs to a vibrant community-driven movement. The state's unique system-comprising over 1,000 palliative care units supported by local governments and more than 400 by civil society groups-thrives through decentralized ownership, non-hierarchical structures,

and spontaneous local participation. These units are supported by diverse actors, including NGOs, religious organizations, political parties, and informal community networks. This dynamic, self-organizing ecosystem continues to expand and adapt, offering valuable insights for public health policy and grassroots healthcare models.

4. Sabu, N.A., Radhakrishnan, V. Status of Holocaust teaching in secondary level of education in Kerala: analysis and suggestions. Humanit Soc Sci Commun 12, 664 (2025).

Holocaust education in India is often overlooked due to its perception as a European event and its historical overlap with India's Independence. This study examines the status of Holocaust teaching in Kerala, highlighting the state's unique connection to Jewish history through the centuries-old Cochin Jewish community. As this community faces decline, purposeful teaching of Jewish settlement and the Holocaust is vital to preserving this heritage. The research analyses history textbooks from Kerala SCERT, NCERT, and ICSE syllabi for classes IX and X, applying the United States Holocaust Memorial Museum's ten guidelines for Holocaust education. Findings reveal that NCERT materials offer a more comprehensive understanding than those from SCERT or ICSE, and the study suggests measures to strengthen Holocaust teaching in Kerala's schools.

5.Das, D. K., & Navaneeth, P. (2025). A Mytho-Religious Reading of Kumbapattu of the Kurichiya Community of Kerala, India. Religions, 16(7), 848.

Kumbapattu is a folk song of the indigenous Kurichiya community sung during Thira, a religious festival celebrated during the month of Kumbham (February). It narrates the mythical life and actions of Malakkari, an embodiment of Lord Shiva and the chief deity of the Kurichiya. A critical study of this 1051-line folk song, its ritual performance, and its ecological fountainheads can contribute to our understanding of the cultural and ritualistic energies and functions of indigenous art forms. This paper examines the role played by religious folk songs in reiterating Kurichiya identity and community integration, and the relevance of such narratives in addressing ecological challenges while sustaining cultural heritage. The method of close textual analysis of Kumbapattu is employed to decode the religious concepts and philosophies of the community, supplemented by observations of ritual performances during fieldwork. This study draws on both primary and secondary materials for the analysis. The study employs Bronis?aw Malinowski's myth-ritual theory to examine the relationship between myth and ritual and their role in shaping the Kurichiya identity. Further, William R. Bascom's four functional categories are applied to identify the ecological functions expressed through the song, since the community is traditionally agrarian and still largely depends on the forest and environment for a significant part of their community life. To provide a culturally grounded interpretation that reflects Kurichiya worldviews, the study also incorporates indigenous epistemology to make the analysis more relevant and comprehensive.

Other articles

1. Rahul, N R, and Banita Behera 2025. 'Living Cultural Heritage Thira of Kerala: An Interdisciplinary Exploration'. Sampratyaya, 2(1): 94-105.

This study examines at the Thira ceremonial art form via an anthropological and museological lens, focusing on its cultural, historical, and performative significance. Thira, religious and social phenomena from Kerala's Malabar area, blends dance, music, and oral traditions. The study follows Thira's growth from tribal and temple origins to modern modifications, capturing broader socio-cultural shifts. It investigates the role of museum anthropology in documenting, preserving, and displaying Thira to ensure the survival of both tangible and intangible cultural heritage. The research uses qualitative approaches such as ethnographic fieldwork, participant observation, and interviews to investigate ceremonial symbolism, community participation, and the impact of modernisation on Thira's practice. Thira's semiotics and embodied knowledge are analysed using interdisciplinary approaches such as ethnomusicology, dance anthropology, and performance theory. Given the growing threat to this ceremonial legacy from socio-economic shifts, cultural dilution, and dwindling practitioners, this study emphasises the critical need for rigorous recording and cultural institutional conservation initiatives. The findings emphasise the importance of comprehensive preservation measures, including physical artefacts, visual media, and oral histories, to protect Thira's spiritual and cultural core. Cultural institutions can play an important role in ensuring the continuity of Thira by connecting local traditions with global audiences, fostering cultural sustainability, and preventing the ritual from becoming a mere performance devoid of its original religious and communal significance.

2.Lahiri, S. C. (2025). Democratising science? The People's Science Movement and the pandemic. Vantage: Journal of Thematic Analysis, 6(1)

This paper examines the role of the Kerala Sastra Sahitya Parishad (KSSP), a pioneering people's science movement in India, during the COVID-19 pandemic. Building on Robert Merton's vision of science thriving within a democratic society, the study contextualizes how science, once a colonial and postcolonial institution tied to state-building in India, was kept alive and vibrant through grassroots activism. During the pandemic-a time marked by scientific uncertainty and growing right-wing hostility towards rational knowledge-KSSP played a critical role in translating scientific information into public awareness and action. The movement facilitated citizen participation in science by disseminating accurate health information, countering misinformation, and reaffirming public faith in scientific reasoning. By documenting these interventions, the paper underscores the continued relevance of people's science movements in bridging the gap between science, society, and democracy in contemporary India.

Agriculture and rural economy

Scopus indexed

1. Ismail, S., Vasudev, H., & Cheriyan, J. (2025). Enhancing Seed Quality and Predictive Accuracy in Indian Agriculture: Case Study at RARS, Kottayam, Kerala. In Advances in Seed Quality Evaluation and Improvement

Agriculture in Kerala faces significant challenges, including unpredictable crop failures, limited dissemination of knowledge, and inadequate access to modern technologies. This chapter explores how advanced Machine Learning (ML) models-Long Short-Term Memory (LSTM), Moving Average (MA), and Auto Regressive Integrated Moving Average (ARIMA)-can enhance agricultural sustainability by improving seed quality and predictive accuracy at the Regional Agricultural Research Station (RARS) in Kottayam. Using time-series data and environmental variables specific to Kerala, the models uncover seasonal patterns and forecast crop yields with improved precision. The study also details the integration of these models into a web-based service featuring crop and fertilizer recommendation systems designed to provide tailored, data-driven support to farmers. This system helps farmers select optimal crops and fertilizers based on local soil and climatic conditions. By combining traditional knowledge with modern analytics, the chapter highlights how data-centric innovations can revolutionize agricultural practices in Kerala, increase yields, and promote environmental and economic sustainability for smallholder farmers.

2. Deepudas, Nair, B.R. Exploring the molecular mechanisms of host plant resistance in Black pepper against Phytophthora: current perspectives. Indian Phytopathology (2025).

The 'King of Spices,' Piper nigrum L., holds significant economic and cultural value but faces a serious threat from foot rot disease caused by *Phytophthora capsici* and *Phytophthora tropicalis.* Due to environmental concerns and rising antimicrobial resistance, fungicide use is becoming less favored, making the identification of naturally resistant cultivars crucial for sustainable disease management. While cultivars such as IISR Shakti (tolerant), IISR Thevam (field resistant), and Panniyur varieties (tolerant) show some resistance, a fully resistant P. *nigrum* variety has yet to be developed. Molecular studies have sought to understand the mechanisms behind the differential responses of these cultivars, with 'Omics' approaches providing substantial data. Key elements in P. *nigrum's* immune response include resistant (R) genes, resistance gene analogues (RGAs), pathogenesis-related (PR) genes, phenylalanine ammonia lyase (PAL), and the phenylpropanoid pathway. Additionally, microsatellites and microRNAs act as regulators in the plant's defense. This review summarizes recent molecular advances in the *Phytophthora-Piper* pathosystem, focusing on the complex regulatory networks involved in the plant's immune response.

3. Shramodaya, Mohankumar, A. P., Kavitha, R., Surendrakumar, A., & Sivakumar, V. (2025). Smart mechanization of tapioca planting: Integrating AI and advanced technologies. Plant Science Today, 12(sp3).

Conventional cassava farming often lacks site-specific guidance, making it difficult for farmers to optimize crop placement and productivity. This review explores how artificial intelligence (AI), machine learning, IoT, and modern mechanization technologies can transform cassava cultivation, particularly in drought-prone regions like Tamil Nadu and Kerala. Cassava, a staple for over 500 million people globally, faces challenges such as inconsistent planting depths and labor inefficiencies caused by traditional methods. Innovations like tractor-operated stake cutter-planters and rotary dibble-type machines offer cost-effective, precise alternatives. Integrating AI and big data analytics enables precision agriculture, allowing farmers to make informed decisions and improve yield consistency. The data and findings in the review underscore that sustained innovation, farmer training, and adoption of smart technologies are essential for improving cassava farming practices, boosting sustainability, and enhancing food security.

4. Lekshmi, G.?S., Aryadevi, R.?D., Pushpalatha, R., Gangadharan, B., & Hariprasad, K.?M. (2025). Enhancing coconut yield potential: A climate?smart land suitability analysis using machine learning. Smart Agricultural Technology

Coconuts are vital to Kerala's agricultural economy, yet yield inconsistencies persist due to diverse land and climate conditions. This study integrates machine learning (ML) and deep learning (DL) models to enhance coconut yield potential through land suitability analysis. Using data from the Soil Survey Department of Kerala, XGBoost was identified as the best-performing model for soil suitability prediction with near-perfect accuracy (100%), while climate suitability was assessed using the MaxEnt model (67.7% accuracy). The results were combined using GIS tools to classify regions into different suitability zones. The study provides a robust, climate-smart framework for optimizing coconut cultivation, demonstrating the applicability of ML and GIS in agricultural planning.

5. Smitha, P.S., Bindhu, V.M., Sudheer, K.P. et al. An integrated modeling approach for the design and planning of inter-basin water transfer under climate change conditions. Sustain. Water Resour. Manag. 11, 64 (2025)

This study investigates the feasibility of inter-basin water transfer (IBT) in the context of climate change and rising water demand, using the proposed Pamba-Achankovil-Vaippar (PAV) link between Kerala and Tamil Nadu as a case study. An integrated modeling framework is employed to evaluate sustainable water transfer volumes under varying climate scenarios (RCP 4.5 and 8.5) and four future development trajectories. The analysis accounts for hydrological uncertainties, environmental flow needs, and

reliability in meeting the donor basin's water requirements. Results show that dependable transfer volumes vary significantly across scenarios, with sustainability index values averaging 0.45, 0.55, and 0.40 during normal, excess, and deficient monsoon years, respectively. The findings confirm that the proposed integrated approach can guide equitable and sustainable water transfers under complex climate and demand conditions without severely compromising donor basin health.

Other articles

1. Mathew, Shilpa & Aiyappanpillai, Prema. (2025). Land Use and Cropping Pattern Changes in Kerala. 49.

Natural resources, particularly land, play a vital role in the development of the agricultural sector. As a primary input, land has long been central to discussions on effective utilization and sustainable management. Land use refers to the overall arrangements, activities, and inputs that people undertake within a specific land cover type (Gregorio and Jansen, 1998). It is a dynamic and evolving process in which each parcel of land is systematically categorized and managed within a defined classification system. The land use pattern of a region is shaped by a variety of socio-economic, agro-climatic, ecological, institutional, and technological factors (Ramasamy et al., 2005; Premakumar and Vinothkhanna, 2015). These patterns are critical in the broader context of natural resource management, as decisions regarding land use significantly influence biodiversity, the supply of agricultural commodities, ecosystem services, and overall societal welfare (Claassen and Tegene, 1999; Jose and Padmanabhan, 2015).

2. Ganesh Ram Jat, Ibraheem Kutty C, Giggin T, Smitha S. (2025). Layer poultry farming in Kerala: Current status, emerging trends, and future prospects. International Journal of Veterinary Science and Animal Husbandry, 10(5), 14-20.

Layer poultry farming in Kerala holds immense potential to enhance food security, rural livelihoods, and economic development, driven by high egg consumption (63 eggs per capita annually) and a demand for 560 crore eggs yearly. However, the state's production of 260 crore eggs falls short, necessitating imports of 300 crore eggs, primarily from Tamil Nadu. This review examines the current status, opportunities, and challenges of layer poultry farming in Kerala, focusing on production systems, management practices, and regional trends. Key challenges include high feed costs (60-70% of expenses), land scarcity (average holding 0.18 hectares), labor shortages, market saturation, and stringent environmental regulations. Government initiatives, such as those by the Kerala State Poultry Development Corporation (KSPDC) and Kudumbashree, promote inclusive models, empowering women and Self-Help Groups (SHGs). Opportunities for growth include leveraging demand for organic and cage-free eggs, adopting climate-resilient breeds like Athulya, and integrating IoT and blockchain technologies for

efficiency and transparency. Strategic recommendations encompass promoting backyard farming, developing value-added products, enhancing cold chain infrastructure, and strengthening research-extension-policy linkages. By addressing these challenges and capitalizing on opportunities, Kerala can achieve self-sufficiency in egg production, fostering a sustainable, profitable, and equitable poultry sector

Public policy

Scopus indexed

1. The Evolution and Impact of E?Governance Initiatives in Kerala, India: A Statistical Analysis of Development Outcomes. (2025). International Journal of Environmental Sciences, 11(6s), 624-635.

This paper examines the evolution and impact of e-governance initiatives in Kerala, India, assessing their effectiveness in promoting socio-economic development. Through analysis of major programs including FRIENDS, Akshaya, and e-District, the study evaluates implementation strategies, outcomes, and challenges. Findings indicate that Kerala's e-governance model has significantly improved service delivery efficiency and citizen participation while facing challenges in digital literacy and infrastructure accessibility. The Kerala experience offers valuable insights for developing regions seeking technology-enabled governance frameworks to advance development goals.

2.J. Sophie von Lieres, A.M. Sretha, M. Nitin Kumar, Nibi Kulangara Velayudhan, Aryadevi Remanidevi Devidas, Maneesha Vinodini Ramesh, Promoting water-sustainability: A participatory co-design approach for addressing water-supply challenges in urban Kerala, India, Journal of Urban Management,2025

This study addresses water supply challenges in rapidly growing urban centres of India through a participatory, co-design approach. Focusing on two marginalised wards in Kochi, Kerala, India, the study uses Participatory Rural Appraisal (PRA) techniques and stakeholder co-design workshops to explore solution suggestions for sustainable urban water supply. The study revealed critical issues such as water shortages, unequal distribution, and water quality concerns. Through active engagement with residents and local water supply service institutions, this study collaboratively designed and proposed sustainable and context-specific solution suggestions, such as implementing Internet of Things (IoT) sensors for real-time monitoring of water systems and a multilingual digital social platform to facilitate communication between water supply services and residents. This approach not only addresses immediate water supply issues but also promotes long-term stakeholder engagement and community empowerment. While some aspects of the findings are context-specific, such as the particular challenges identified and the solutions

suggested, the core methodology of combining PRA and co-design approaches is generalisable to other contexts. The research findings provided insights that can be applied across different urban infrastructure issues in different contexts to understand local challenges, engage stakeholders, integrate technology with existing infrastructure and local knowledge, create user-friendly interfaces, and iteratively refine solutions in a co-design process. The study's innovative methodology demonstrates how participatory approaches can lead to more effective, sustainable, and locally adapted solutions in urban water supply, offering valuable insights for policymakers and urban planners in low- and middle-income countries facing similar challenges.

3. The Evolution and Impact of E-Governance Initiatives in Kerala, India: A Statistical Analysis of Development Outcomes. (2025). International Journal of Environmental Sciences, 11(6s), 624-635.

This paper examines the evolution and impact of e-governance initiatives in Kerala, India, assessing their effectiveness in promoting socio-economic development. Through analysis of major programs including FRIENDS, Akshaya, and e-District, the study evaluates implementation strategies, outcomes, and challenges. Findings indicate that Kerala's e-governance model has significantly improved service delivery efficiency and citizen participation while facing challenges in digital literacy and infrastructure accessibility. The Kerala experience offers valuable insights for developing regions seeking technology-enabled governance frameworks to advance development goals.

Scopus indexed

Book chapter

1. Renjith, P.S., Antony, S. (2025). Sustainability and Growth Implications of Sub-National Fiscal Choices in India: A Case of Kerala. In: Shanmugam, K.R. (eds) India's Public Finance and Policy Challenges in the 2020s. India Studies in Business and Economics. Springer, Singapore.

Indian states face fiscal stress due to limited revenue autonomy and rising expenditures, often compromising development priorities. This study examines Kerala's fiscal choices from 1980 to 2022 to assess their impact on development, sustainability, and growth. Using policy response models, p-spline estimations, and threshold regressions, the findings show that Kerala's fiscal deficit above 3% increases development spending but also raises concerns about debt sustainability. The sustainable debt-GSDP ratio is identified as 27.9%, below the current 36.69%, with growth benefits tapering off beyond this threshold. The study recommends state-specific fiscal strategies to enhance development while ensuring long-term fiscal sustainability.

2. Irudaya Rajan, S., Sunitha, S. (2025). The Emerging Aging Scenario in India. In: Handbook of Aging, Health and Public Policy. Springer, Singapore

The world is graying, and rather than the earlier phenomenon of the younger population caring for the older population, the young-old population is now caring for the older and oldest old. Earlier, the graying population was a phenomenon in developed countries, but it is now common in many countries, irrespective of their economic classes. The world has undergone drastic changes in terms of demography, environment, and economy. Globally, these radical changes in demographics, climate, and economy affect the living conditions of the human population. These drastic changes, especially in terms of demographics and economy, affect individuals in particular and society in general. It challenges the older population in terms of healthcare and services, family relationships, social security, and pension schemes. This chapter intends to give an idea of the global aging growth, the changing demographic profile of India and its states, and the challenges in the emerging aging status. It also attempts to define aging under the changed condition with the nature of aging and care needs, which has implications for policy formation.

Other articles

1. Anil, A., Kartha, A. V., Alappat, D. J., & Dinesh, M. (2025). From Margins to Mainstream: The Impact of the India Eco-Development Project on Tribal Well-Being in Kumily, Idukki. In Proceedings of the IBA IEA Conference on Economics and Public Policy (Ecofluence 2024) (pp. 76-94). Atlantis Press

The study examines the impact of the India Eco-development Project (IEDP) on the tribal communities in Kumily, Idukki. Data were collected through semi-structured interviews, focus group discussions, and field observations. Significant improvements in physical infrastructure, such as housing, sanitation, and road access, were noted. However, social infrastructure development was mixed. While the IEDP fostered community participation and empowerment through the establishment of Ecodevelopment Committees (EDCs), persistent challenges remain, particularly concerning gender roles, education, and healthcare access. Although healthcare facilities have improved and infant mortality rates have declined, serious illnesses still necessitate long-distance travel to hospitals, and issues like alcohol abuse among youth remain prevalent. While the project supported women's empowerment initiatives, empowerment levels varied, with some women assuming greater responsibilities and others remaining constrained by traditional roles. These findings highlight the need for integrated public policies that address both physical and social infrastructure to achieve truly sustainable and inclusive development outcomes in protected area communities.

Labour

1. Xavier, M. (2025). Negotiating the Masculinities: Reading the Marginal Worlds in Nalini Jameela's Romantic Encounters of a Sex Worker

This paper explores the constellation of masculinities portrayed in the memoirs of Nalini Jameela, with a particular focus on her work Ente Aanungal, translated into English as Romantic Encounters of a Sex Worker (2018). Her negotiation with the complex landscape of masculinities is analysed to understand how life writing as a genre has the potential to present a counter-public discourse that enables the subaltern worlds to assert their voices. Her memoirs also disrupt the hegemonic constructions of gender, sexuality, and morality, although there are strategic compromises with the established patterns during many instances. By portraying her experiences with a wide range of masculinities, her narrative brings out the fluid and often contradictory masculinities at play, which are often missed from the regular analysis of mainstream Kerala society. Her autobiographical accounts thus present an alternative perspective on masculinity studies in the context of Kerala. The paper tries to understand how different masculinities are performed and how they are negotiated and resisted within the transactional sexual economies. Her ethnographic-like exploration of her relationships helps us to understand the dualities embedded in Kerala society from a fresh perspective, which can present a cogent critique of the social hierarchies and the moral geographies of this region.

2. P.M., Joshy. (2025). Reimagining Resources: Analyzing the Politics of Dalit Land Struggles in Kerala, India with Special Reference to Chengara

This article examines the history of land alienation in Kerala, its representation in social reform movements, and the ongoing land struggle in Chengara. It highlights how movements led by Ayyankali and Poykayil Appachan transcended Brahmin-imposed sub-caste divisions to unify oppressed communities around shared concerns. However, the ruling class effectively weakened these movements through sub-caste fragmentation. Similarly, the Chengara struggle, led by the Sadhujana Vimochana Samyukthavedi and inspired by Ayyankali, faced suppression with support from the Communist Party of India (Marxist). The study underscores the recurring role of sub-caste divisions in undermining collective action and emphasizes the importance of charismatic leadership in fostering unity and resisting hegemonic strategies in caste-dominated societies.

3. Ansari, P. A. A., & Sameer, B. M. (2025). Back to the roots: Socio-economic policy making and re-integration of Kerala's Gulf-return migrants amidst the COVID-19.

Many gulf countries' migrants, particularly those from developing countries like India, have been deeply affected by the COVID-19 pandemic. Kerala, a state with high emigration rates, depends heavily on these migrant workers who form a significant part of its labour force. This research report examines how Kerala has responded to the

COVID-19 crisis and highlights its distinct and notable approaches. However, most Gulf migrants work in the informal sector and are unaware of many things. These former key components of Kerala's economy return home to find themselves excluded, disorganised, and voiceless, as their rights or working environment cannot be fought for. Within the period of COVID-19, more than half a million returnees in Kerala faced numerous problems as well as socio-economic challenges. They were once breadwinners in families, but now face similar hardships within their states. This study examines the macroscopic aspects of the socioeconomic lives of marginalised migrants, as well as the social links that hinder their integration into society, both through state policies and community barriers. The article is based on a survey of 300 respondents from Malappuram and Ernakulam districts, aimed at understanding the intricacies of post-pandemic experiences.

Gender and social inclusion

Scopus indexed

1. Jose, B., & Muthulakshmi, S. (2025). Kerala's Differently Abled: A Socio-Economic and Demographic Perspective

The inclusion of differently abled individuals into mainstream society has been a focus of Indian policy, marked by the enactment of the Persons with Disabilities Act in 1995 and its comprehensive revision through the Rights of Persons with Disabilities Act, 2016. These legislations aim to safeguard the rights of the differently abled, particularly in education and employment. Kerala, known for its progressive policies and high human development indicators, has taken proactive steps in this direction. In 2015, the state conducted a Disability Census under the Social Security Mission to assess the demographic and socio-economic status of differently abled individuals. Kerala remains the only Indian state to undertake such a detailed study. This research analyzes data from the 2015 Disability Census to examine the socio-economic and demographic profile of the differently abled in Kerala and offers policy recommendations to enhance their inclusion and development.

2. Johny V, F., Menon, V.T.K., Georgy, S. et al. Prevalence of recurrent urinary tract infections and its associated factors in female staff of reproductive age group in a medical college in central Kerala: a cross-sectional study. BMC Infect Dis 25, 276 (2025).

This cross-sectional study among 417 female staff aged 18-49 years in a private medical college in central Kerala found a 22.30% prevalence of recurrent urinary tract infections (UTIs) (?3 episodes in 12 months). Recurrent UTI was significantly associated with factors such as low daily water intake, reduced urination frequency, holding urine, foul-smelling vaginal discharge, constipation, lack of pre-coital urination, and inadequate

pre- and post-intercourse vaginal hygiene. Occupation also played a role, with cleaning staff showing higher odds. The findings highlight that prevention requires adequate hydration (>2 L/day), good personal and sexual hygiene, and targeted health education to improve quality of life among women in this group.

Other articles

1. K A, R., & C C, D. (2025). Socio-Economic Disparities in Educational Attainment and Career Aspirations: A Study of Students in Thrissur District, Kerala

This study investigates how socio-economic factors shape the educational experiences and aspirations of college students in Thrissur district, Kerala. Employing a mixed-methods approach, it analyzes the impact of family income, parental education, and occupation on academic performance, access to resources, and career goals. Findings show that students from lower socio-economic backgrounds face financial constraints and limited support, which hinder their academic progress and aspirations. Conversely, those from more privileged backgrounds benefit from greater resources and parental involvement, enabling stronger ambitions. The study highlights the critical role of parental background in educational outcomes and advocates for inclusive policies-such as financial assistance, career counseling, and parental engagement-to bridge the educational divide and foster socio-economic mobility.

2. Matovu, B. & Lukambagire, I. (2025). Examining the perceptions and attitudes toward Women's employment and leadership in the blue economy: A case study of India

The blue economy (BE) offers significant potential for sustainable development and coastal women's empowerment (WE). However, challenges related to gender exclusion and male dominance in BE sectors persist, particularly in employment and leadership roles. This study, using India as a case study, conducts a bibliometric analysis of 1,768 scholarly articles to explore research trends, key themes, and perceptions toward women's involvement in the BE. Findings show a growing interest in gender-related BE research, yet most of it appears in low-impact journals, with limited international collaboration. Persistent gender stereotypes and structural inequalities continue to hinder women's participation. Although opportunities are increasing in service and nearshore sectors, significant gaps remain in leadership inclusion. The study emphasizes the importance of transdisciplinary research, financial literacy, institutional support, and community-based strategies to promote WE. A five-step Women Empowerment Pathway (WEP) is proposed to facilitate phased and holistic empowerment, calling for a redefinition of WE in the BE to identify grassroots vulnerabilities and foster inclusive, replicable frameworks.

Growth and development

Scopus indexed

1. Amrie Singh, Vijay Sreeparvathy, Sengupta Debdut, Maria Pregnolato, Nigel Wright, A critical review of flood risk assessment in Kerala Post-2018: Methodological approaches, gaps, and future directions,

This study critically reviews the state of flood risk assessment (FRA) in Kerala, India, with a particular focus on developments since the catastrophic floods of 2018. Kerala, comprising 14 districts with diverse topography, climate, and land-use patterns, has witnessed an increasing frequency and intensity of flooding events in the 21st century. The 2018 floods, triggered by extreme rainfall and aggravated by anthropogenic factors such as wetland encroachment, riverbed sand mining, and inadequate urban drainage, resulted in over 480 fatalities and the displacement of more than a million people. Despite a long history of flood occurrences, flood management systems have failed to match the scale of recent disasters due to outdated infrastructure, fragmented dam management practices, and poorly coordinated urban planning. This review synthesizes existing FRA methodologies applied in Kerala, including hydrological modelling, remote sensing, GIS-based mapping, and vulnerability assessments. By identifying methodological gaps-such as insufficient integration of climate projections, socio-economic vulnerability metrics, and real-time monitoring-the paper provides a foundation for developing more effective, region-specific flood management strategies. The findings underscore the need for coordinated, multi-disciplinary approaches that integrate environmental sustainability with growth-oriented development planning, ensuring Kerala's resilience against future flood hazards.

2. Achu, A.L., Aju, C.D., Thomas, J. et al. Decoding the dynamics of July 2024 Mundakkai-Chooralmala landslide in Kerala (India): an analysis of formation mechanisms, impacts and lessons learned.

Most sections of Kerala's Western Ghats are highly susceptible to landslides, especially during extreme rainfall events (EREs). On 30 July 2024, the Mundakkai-Chooralmala region in Wayanad experienced one of India's deadliest landslides, causing over 225 deaths, 273 injuries, 131 missing persons, and destruction of 1,555 houses. This study examines the event's formation mechanisms and impacts through field observations, aerial imagery, satellite data, and rainfall records. The ~7 km runout was triggered by 373 mm of rainfall within 24 h, compounded by antecedent totals of 586 mm (3 days) and 809 mm (5 days). Unstable slopes of thick lateritic soils and kaolinitic clay over weathered charnockites and gneisses, combined with concave slope morphology, amplified failure risk. Debris dams formed and breached, intensifying downstream damage. The findings highlight the need for targeted landslide risk management,

including early warning systems, improved land use planning, and community preparedness in the Western Ghats.

3. Renu, S., Reddy, B. S. N., Santhosh, S., Sreelekshmi, Lekshmi, V., Pramada, S. K., & Sridhar, V. (2025). Hydrologic and Hydraulic Modeling for Flood Risk Assessment: A Case Study of Periyar River Basin, Kerala, India. Climate, 13(6), 129.

Floods pose a substantial threat to both life and property, with their frequency and intensity escalating due to climate change. A comprehensive hydrological and hydraulic modeling approach is essential for understanding flood dynamics and developing effective future flood risk management strategies. The accuracy of Digital Elevation Models (DEMs) directly impacts the reliability of hydrologic simulations. This study focuses on evaluating the efficacy of two DEMs in hydrological modeling, specifically investigating their potential for daily discharge simulation in the Periyar River Basin, Kerala, India. Recognizing the limitations of the Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) with the available dataset, a novel hybrid model was developed by integrating HEC-HMS outputs with an Artificial Neural Network (ANN). While precipitation, lagged precipitation, and lagged discharge served as inputs to the ANN, the hybrid model also incorporated HEC-HMS simulations as an additional input. The results demonstrated improved performance of the hybrid model in simulating daily discharge. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) was employed to predict flood inundation areas for both historical and future scenarios in the Aluva region of the Periyar River Basin, which was severely impacted during the 2018 Kerala floods. By integrating hydrological and hydraulic modeling approaches, this study aims to enhance flood prediction accuracy and contribute to the development of effective flood mitigation strategies.

4. D, H.S., Thekkumakara Surendran, A., Gaitonde, R. et al. Health in Kerala: exploring achievements and remaining challenges of health systems reform using an equity lens. Int J Equity Health 24, 89 (2025).

The southern Indian state of Kerala, often cited as a global model for achieving impressive health outcomes at low cost, continues to face disparities in health equity, particularly among underserved populations. This special issue, based on an open call in 2022, received 29 submissions, of which nine peer-reviewed articles were published, covering topics such as tuberculosis control efforts, evaluations of Universal Health Coverage (UHC) reforms, challenges faced by transgender individuals in accessing gender-affirming care, qualitative analyses of UHC policies from marginalized perspectives, a rabies death case study, and the mental health impact of COVID-19 on school children. Collectively, these studies highlight persistent barriers such as limited access to care, inadequate attention to social

determinants, lack of targeted interventions for marginalized communities, and insufficient engagement with the private sector. The findings emphasize the need for custom-tailored policies to meet the specific health needs of underserved populations, rather than relying on a "more of the same" approach.

Other articles

1. Ramkumar, M. and Balasubramani, K. (2025). Environmental dynamics in the tropical tourist beaches of southwestern India

Tropical beaches with lush vegetation are prime locations for recreation and tourism, particularly along the southwestern coast of India, where rainforests meet serene beaches. While such activities boost economic growth, they often result in significant environmental degradation. This study investigates four popular beaches in Kerala-Pozhikkara, Hawa, Lighthouse, and Chowara-to assess coastal environmental sustainability through geomorphological, land use/land cover, and sediment textural analyses. Results reveal dominance of medium to coarse sediments, high heavy mineral content, and platykurtic distributions, indicating homogenization due to anthropogenic interference. Environmental discrimination diagrams suggest sediment exposure to turbid, high-energy conditions, affirming human-induced alterations. The transformation of fluvial sediments to marine signatures further supports this impact. These findings highlight the ecological stress caused by unchecked recreational and commercial activities, especially in intertidal zones, often in violation of coastal regulations. The study underscores the urgent need for remedial and reclamation strategies to preserve the ecological integrity and sustainable habitability of Kerala's tourist beaches.

2. Mathew, A. (2025). The obesity equation: Unpacking the role of changing food consumption patterns. American Journal of Psychiatric Rehabilitation, 28(5).

Overweight and obesity are now recognized as serious global public health concerns. In Kerala, a state known for its high social development standards, lifestyle diseases-particularly obesity-are on the rise. This growing issue is closely linked to metabolic syndrome, which includes conditions like high blood pressure, diabetes, and elevated cholesterol levels. Non-communicable diseases (NCDs) such as cancer, heart disease, and respiratory conditions are increasing rapidly, placing a heavy burden on the state's healthcare system and reducing productivity. Poor diet, sedentary lifestyles, alcohol consumption, and smoking are key contributors, and these issues are now affecting children and adolescents as well as adults. Despite numerous studies on obesity and its causes, there has been little focused research on adult obesity in Kerala. This study aims to assess the prevalence of overweight and obesity among adults and explore the socio-economic and consumption patterns driving this trend. Adolescent

obesity, influenced by changing socio-economic conditions and dietary habits, remains an under-researched area. Addressing it is essential-not only as a matter of human rights but also for the long-term economic and health benefits to society. Investing in adolescent health ensures a healthier, more productive future population and reduces the burden of disease in later life.

What is new(s) from GIFT

A. Seminars/Webinars

GIFT organised a seminar on 'A comparative study on welfare pension schemes (including welfare fund 'A comparative study on welfare pension schemes (including welfare fund boards) in Kerala' on April 11, 2025.

The speakers on the paper were Dr Anoop S Kumar and Dr Renjith P S, Assistant Professors of GIFT, Prof K J Joseph, Director, GIFT chaired the session.

Abstract : In the current context marked by shifting demographics, evolving social welfare structures, and complex financial dynamics, the need to ensure the well-being and financial security of the socially disadvantaged, especially the elderly, is increasingly crucial. Recognizing this, we aim to conduct a comprehensive study examining welfare pension schemes in Kerala, a state facing unique demographic challenges compared to other Indian states. The study explores the intricacies, opportunities, and challenges of providing social security to the elderly in India, focusing on Kerala, where the age dependency ratio is the highest in the country at 19.6 percent. In our initial analysis, we observe that Kerala's pension provisions can be classified into four distinct groups, each catering to specific segments of the population: (i) Service Pensioners, including family and others, (ii) Pensioners under Welfare Pension Schemes like Agriculture Labour Pensioners (ALP), Indira Gandhi National Old Age Pensioners (IGNOAP), Indira Gandhi National Disabled Pensioners (IGNDP), Unmarried Women Pensioners (UWP), and Indira Gandhi National Widow Pensioners (IGNWP), (iii) Pensioners through 22 (partially or fully government funded) Welfare Fund Boards, and (iv) Other Pensioners, such as Circus Artist's Pension, Vishwakarma Pension, Cancer Patients' Pension, TB Patients' Pension, and Leprosy Patient Pension.As of March 31, 2022, Kerala reported impressive figures under state-administered pension schemes: (i) 52.21 lakh social security pensioners, (ii) 4.39 lakh state service pensioners, (iii) 8.29 lakh welfare board pensioners, and (iv) 0.82 lakh other pensions. In total, pension coverage from all sources in the state reaches a substantial 66.4 lakh individuals, which is 19% of Kerala's population. Out of these, approximately 49.36 lakh beneficiaries belong to the 60+ population. A noteworthy finding from this study is that, conservatively estimated, 84.33% of Kerala's elderly population is covered under various pension schemes. To further understand Kerala's standing, the study proceeds to compare the number of social security pension schemes, coverage, old age welfare pension coverage, and the total pension liabilities of the state. Finally, the study explores the potential fiscal challenges Kerala may face if there is a

change in the number of beneficiaries and the amount spent comparatively. The findings of the study may be valuable for policymakers in taking appropriate actions to shape the future of Kerala's social security pension policy.

GIFT organised a seminar on 'Fiscal Federalism and Centrally Sponsored Schemes in India: Issues and Challenges' on May 09, 2025.

The presenters of the paper were Dr Sumalatha B S, Smt Anitha Kumary L and Dr Nirmal Roy V P, Faculty of GIFT, Prof K N Harilal, Chairman, 7th State Finance Commission, Govt of Kerala chaired the session. Ms Josephine J, Chief Decentralised Planning Division, Kerala State Planning Board and Dr Anilkumar B M, Deputy Director, Kerala State Planning Board were the discussants. Prof K J Joseph, Director, GIFT welcomed the gathering.

Abstract: The Intergovernmental transfers from the Union government to the states are crucial in addressing the vertical and horizontal fiscal imbalances that exists between different tiers of governments. The mismatch between the revenue capacity and expenditure needs of the sub national governments warrants uninterrupted intergovernmental fiscal transfers. The Finance Commission (FC) makes recommendations on tax devolution and grants in aid, which are typically general purpose, unconditional transfers. In contrast, special purpose grants, which are conditional in nature, are provided through the Central sector schemes and Centrally Sponsored Schemes (CSS) by various Ministries under the Government of India. Given this background, this paper analyses the structure of conditional and unconditional grants over a period of time. The study finds that there is a considerable increase in the non- statutory transfers. CSS constitute highest among the non-statutory grants and of late there is an increase in the Centre sector schemes. This is visible particularly after the abolition of Planning Commission. Though the number of CSSs has increased over a period of time, the allocation has fallen during the last few years. A structural change in the CSS occurred in 2023-24 by increasing the number of CSS schemes to 82 with discontinuation of core of core and core categorisation of schemes. Findings show that the states such as Kerala, Haryana and Punjab have the lowest per capita CSS amount compared to other states. There is a gap between the budgeted and actual CSS flows to Kerala. The increased tied transfers to the states raise the important concern of whether the development needs of the states are taken care while designing the schemes.

GIFT organised a Round Table Discussion on "Urban Employment Guarantee Schemes in India: Exploring Lessons from Kerala for a National Agenda" on June 26, 2025.

The round table discussion was chaired by Prof V K Ramachandran, Vice Chairman, Kerala State Planning Board. The Panellists included Prof Amitabh Kundu, Distinguished Fellow Research and Information System for Developing Countries New Delhi, Prof Ravi Srivastava, Centre for Employment Studies, Institute of Human Development, New Delhi;

Prof K P Kannan, Chairman Laurie Baker Centre for Habitat Studies Thiruvananthapuram, Prof A V Jose, Former Director & Honorary Fellow GIFT; Prof Jiju P Alex, Member, Kerala State Planning Board; Prof Jos Chathukulam, Director, Centre for Rural Management Kottayam; Prof Vinoj Abraham, Chair Professor, Ministry of Commerce and Industry, CDS, Thiruvananthapuram and Dr Shiuli Vanaja, Assistant Professor, Azim Premji University Bengaluru. Prof K J Joseph, Director, GIFT welcomed the gathering and Dr Kiran Kumar Kakarlapudi,Assistant Professor GIFT delivered the vote of thanks.

Background and Rationale of the Round Table : India is undergoing a steady urban transformation, with nearly 500 million people projected to live in cities by 2036. Yet Indian cities and towns, which drive the country's economic growth, face abysmally high unemployment rates, low casual wages, and a lack of social safety nets for urban workers. It is widely noted in the literature that urban livelihoods remain dominated by informal and precarious employment. The COVID-19 pandemic exposed the vulnerability of urban workers, particularly migrants, women, and young people, who lacked formal employment, income protection, or social security. In the context of the looming unemployment crisis, especially in urban India, demand-driven wage employment schemes in urban areas are gaining traction in the policy and academic discourse. While the rural employment guarantees (MGNREGA) has evolved into a crucial social protection instrument, urban India lacks a comparable safety net. The necessity for a UEGS has become increasingly pronounced due to the precarious nature of urban unemployment and the structural shifts in the labour market from the farm to the non-farm sector, especially in construction and manufacturing. The recent UNDP report (2023) and scholarly work, including in Working People of India (2022), make a compelling case for a nationally supported Urban Employment Guarantee Scheme (UEGS) as an active labour market policy to provide livelihood security for such workers. The self-targeted design of public employment programs can effectively identify those vulnerable to losing their livelihoods and at risk of falling into poverty (Choragudi, 2025). In recent years, some state governments have introduced UEGs to create livelihood security for the urban informal workforce and contribute to urban asset creation. Kerala, which has one of the highest unemployment rates in the country, especially in the state's urban areas, pioneered the introduction of the Ayyankali Urban Employment Guarantee Scheme (AUEGS) in 2010. The AUEGS aimed to address the problem of urban unemployment by providing guaranteed wage employment for 100 days to urban households engaged in unskilled manual work, thereby addressing the issue of urban unemployment in the state. Following Kerala's initiative, several other states like West Bengal, Odisha, Rajasthan, Maharashtra, Madhya Pradesh, Jharkhand, Tripura and Tamil Nadu have already piloted such schemes with early learnings. However, a critical analysis of the existing model and an assessment of its limitations and potential redesign is imperative for ensuring its effective implementation.

Seminar Co ordinators:- Dr Kiran Kumar Kakarlapudi and Dr Geetha Rani V

B. Teaching and training programmes

1. Post Graduate Diploma in GST (PGDGST)

The Notification and press release for the admission of PGD GST 2025-26 batch was issued on May 15,2025. Last date for applying for the course is extended upto July 7, 2025.The notification and press release are widely circulated through various news daily and FM channels across Kerala. The commencement of classes will be in the last week of July 2025. For the previous batch (2024-25), the examinations were over by 11th May 2025 at three different centres_ Thiruvananthapuram, Ernakulum and Kozhikode and the result will be published in July 2025. Last date for completing the assignment tasks in Nergy Vidya Platform is extended to the last week of June 2025.

Coordinators : *Dr. Meenu Mohan & Dr Geetha Rani V*

For more details: https://www.gift.res.in/index.php/course/detail/14/PGD-GST

2. PhD programme

The activities of the Ph.D programme during April 2025 to June 2025 are listed below. The course work for the sixth batch Ph.D is ongoing. An interactive session with Prof. H K Amarnath, Associate Professor, National Institute of Public Finance and Policy on databases of Public Finance was held on 8th May 2025. The research proposal confirmation seminar presentations of fifth batch Ph.D and Research Committee meeting was held on 2nd June 2025. Ms. Suha A M, Ph.D scholar of the first batch defended her Ph.D viva voce on the topic 'Fiscal Federal relations in India: Lump sum transfers, fiscal space and sub national growth' on 4th June 2025 at the Department of Economics, Cochin University of Science and Technology. On 10th June 2025, a Ph.D committee meeting was held to discuss about the Ph.D Handbook 2025 and lecture schedules. The field survey report presentations of the sixth batch Ph.D scholars were held on 11th June 2025. On 23rd June 2025, a Ph.D committee meeting was held to discuss about the Ph.D related matters. The work progress seminar presentations of the fourth batch Ph.D scholars were held from 26th June 2025 to 31st June 2025.

Aswathy M A, GIFT Ph.D scholar participated in the ICSSR Sponsored Ten-day Research Methodology Course, held at Department of HSS, IIT Roorkee, Roorkee, Uttarakhand during May 12-21, 2025

Aswathy M A, GIFT Ph.D scholar published a research paper titled 'Who uses public healthcare in India? Insights from NSS 75th round in the South India Journal of Social Sciences (SIJSS) for its Vol 23, No 3 June 2025 issue. *https://doi.org/10.62656/sijss.v23i3.2104*

Aisha Ibrahim Mohammed, GIFT Ph.D scholar submitted her Ph.D thesis titled 'Regulatory framework of direct selling in India: A study of Kerala Experience' on 8th May 2025.

Vipasha Ray Hajong, GIFT Ph.D scholar handled a session on data analysis using R statistical package for the first batch of Internship students during April 2025 to May 2025.

Arun Paul GIFT, Ph.D scholar presented a paper titled 'BEPS and FDI Inflows: The Experience of LMICs', co- authored with Dr. Renjith P. S, at the Management Education and Research Colloquium (MERC 2025), held at IIM Kashipur from May 23 to 25, 2025.

Arun Paul, GIFT Ph.D scholar's research paper titled Base erosion and profit shifting and FDI inflows: The experience of lower middle income countries' selected for presentation at the Global Tax Symposium, to be held in hybrid mode at the University of Valencia during September 15-16, 2025

A. M. Indu, GIFT Ph.D scholar presented a paper titled 'Ind AS 107: Compliance Pattern and Determinants' at the Management Education and Research Colloquium (MERC 2025), held at IIM Kashipur from May 23 to 25, 2025.

Niveditha P. S. GIFT Ph.D scholar's research paper titled 'Rethinking Reserve Management for Financial Autonomy: Currency Composition of International Reserves in the Global South'was accepted for presentation at the Global Conference on "Towards a Needed Paradigm Shift in Economic Policy: Addressing Industrial Development and Financial Autonomy in the Global South," to be held in Johannesburg, South Africa from September 24 to 26, 2025. An honorarium of USD 4,000 was awarded for writing the commissioned paper.

Meghna Jayasankar and Niveditha P. S, GIFT Ph.D scholars' research paper titled 'Towards the Path of Green Finance: Unravelling the Co-movement between Green Crypto currencies and Bitcoin'was accepted for publication in Economics Bulletin (Scopus Q4).

Adithyakrishnan, GIFT Ph.D scholar presented a paper titled 'Macroeconomic Stability and Monetary-Fiscal Policy Coordination in India: A Structural Approach' at the 17th Doctoral Thesis Conference organized by ICFAI-IGIDR on May 22, 2025 in online mode

Gopika G, Amalu Seby, Anuraj P K, Anjalikrishna Sudhakaran and Rhwithwik M S, GIFT Ph.D scholars have handled classes on the topics 'Orientation on UGC NET and JRF examination, Competitive economics, Unlock linkedin: post, connect and grow, How to read a research article and Introduction to R software' respectively for the second batch Internship students during June 2025 to July 2025

Rhwithwik M S, GIFT Ph.D scholar participated in the Summer School on The Sraffa-Keynes Approach: History, Theory, and Applications, conducted by YSI-INET and Azim Premji University in association with the Indian Society for History of Economic Thought at Azim Premji University, Bangalore, during April 2-6, 2025.

Vandanan S, GIFT Ph.D scholar presented a paper titled 'Technological Disruption in Dairy Cooperatives: A Case of Frugal Innovation" at the Two-Day International Conference on AI-Driven Global Trends in Commerce, held during May 29-30, 2025, at Mangalore University.

Jubairiya P M, Manju Preman, Muhammed Ijilal ,Yasir M K, Shahid P K, Sona Muraleedharan, & Vandanan S, GIFT Ph.D scholars participated in the Third Summer Training Program in Public Finance, held from June 30 to July 11, 2025, organized by the Centre for Public Finance, Madras School of Economics, Chennai.

Course Coordinators : *Dr Sumalatha and Dr Renjith P S*

C. Publications

1. Kerala Tax Reporter (KTR)

January, February and March 2025 issues of KTR published Online and offline.

https://www.gift.res.in/ktr

2.Innovation and Development

A Routledge journal from GIFT, Volume 15, No. 2 (2025) published, Editor in Chief, K J Joseph.

For details, please visit https://www.tandfonline.com/toc/riad20/current

3. Weekly update on Finance, Taxation and the Indian Economy

This is an attempt by the Young Scholar' Forum in GIFT, led by Smt Soudhamini G S, Assistant Librarian to update on important developments on Finance, Taxation and the Indian economy. Twelve issues of Weekly updates published during April to June 2025 which are available in GIFT Website. Latest issue: 23-27 June 2025.

For details, please visit *https://www.gift.res.in/index.php/publish/publish_list/14/Weekly-Updates-on-Finance.*

4.Monthly Content Alert from GIFT Library

The GIFT library provides a monthly content alert service, extensively designed to support the research endeavors of our PhD scholars. This attempt provides a selection of recently published journal article titles, abstracts, and links, delivering them directly to the GIFT community each month. The content alert service is more than just a monthly update and the initiative aims to be an indispensable tool for scholars, providing them with timely access to the latest research developments in their fields. It is drawn from a wide array of reputed journals.

Twelve issues of the content alert service have been published, covering the period from April to June 2025 The preparation of this content alert is led by Smt Soudhamini G S, Assistant Librarian, GIFT. Latest issue: June 27, Vol. 6. Part 4 , 2025

D. Faculty publications

1.GIFT Discussion Paper

Ashraf Pulikkamath & Jafar K, ***Kerala's Gender Budgeting Policy Through A Critical Lens (2025), GIFT Discussion Paper Series No.3/2025***

Abstract : Contemporary development discourse increasingly emphasizes gender-sensitive fiscal tools like gender audits and budgeting to achieve meaningful gender mainstreaming. Gender budgeting is often misinterpreted as allocating funds solely for women; however, it involves embedding gender perspectives across all stages of policymaking. Budgets affect men and women differently, challenging assumptions of neutrality and highlighting the need for equitable resource allocation. The historical foundation of gender-inclusive finance, rooted in 19th-century debates and propelled by the 1995 Beijing Conference, led to global acceptance of gender budgeting. India adopted it nationally in 2005-06, with Kerala following in 2008- 09. Despite over 15 years of practice, Kerala's approach lacks critical assessment and continues to face implementation issues. This study critically evaluates Kerala's gender budgeting using an exploratory mixed-methods approach. It draws on Kerala's Gender Budget Statements (2017-2024), stakeholder interviews, and is guided by Brest and Krieger's (2010) Policy Analysis framework, alongside selected gender development theories. The analysis reveals a shift away from gender mainstreaming toward poverty-focused goals that reinforce, rather than challenge, patriarchal norms. Welfare programs under gender budgeting often align with traditional expectations of women's roles, indicating deep-seated patriarchal influences in fiscal policy.

Key Words: *Gender-sensitive budgeting, fiscal policy, gender equity, public finance, patriarchy*

https://www.gift.res.in/wp-content/uploads/2025/06/SKeralas-gender-budgeting-policy-through-a-critical-lens-Final.pdf

Shamna Thacha Paramban: ***Revisiting 'Demographic Performance': Population Aging and Fiscal Implications (2025), GIFT Discussion Paper Series No.4/2025***

Abstract : The Fifteenth Finance Commission introduced a significant change by shifting from the outdated 1971 census to the 2011 census. This change was intended to reflect current demographic realities in the methodology for determining states' shares. However, this shift has disproportionately impacted states, particularly those states, that have successfully managed population growth and invested in human development.

While the introduction of the "demographic performance" criterion aimed to reward states for controlling their populations, this analysis reveals the limitations of the current formula in effectively incentivizing such states. It highlights the need for a more nuanced evaluation to address demographic challenges, especially those associated with aging populations resulting from increased life expectancy and lower fertility rates, along with further fiscal implications arising from second-generation issues. To incentivize states that have achieved better outcomes in human capital, a revised approach that incorporates total fertility rates and the share of the elderly population is proposed. This approach balances historical and contemporary considerations, fostering a more equitable distribution of resources aligned with the need-based principles of fiscal federalism while simultaneously serving as a performance incentive.

Key Words : *Demographic Performance; Population Aging; Elderly Population; Central Transfers; Fiscal Implications*

https://www.gift.res.in/wp-content/uploads/2025/07/Revisiting-%E2%80%98Demographic-Performance-Population-Aging-and-Fiscal-Implications-Final.pdf

Rju Mohan, Prof. K J Joseph and Dr. P S Renjith : ***Climate Change Vulnerability in India: An Integrated Assessment, (2025), GIFT Discussion Paper Series No.5/2025***

Abstract : India is one of the world's most disaster-prone countries, highly exposed to recurrent natural hazards of earthquakes, cyclones, floods, landslides, and droughts. The problem gets further compounded by climate change and environmental degradation, increasing the frequency and intensity of disasters. However, these extreme events as such do not necessarily cause extreme disaster risk; the risk on the other hand occurs only when potentially vulnerable populations and assets remain exposed to the impacts of such extreme events. This paradigm thus recognises the spectrum of man-environment relations as an integral part of disaster risk along with the 'naturalness'. The present paper seeks to synthesise the major assessment exercises of climate change vulnerability of India within the conceptual framework of an integrated social vulnerability paradigm. The contribution of this paper is in terms of its attempt to (i) develop an integrated conceptual framework of climate change vulnerability, within which a review of the important climate change vulnerability indices is presented and the position of India therein is assessed and (ii) build up a modified disaster outcome indicator-based vulnerability index and a comprehensive vulnerability input indicator-based index in a comparative actual potential vulnerability structure in line with our integrated conceptual framework for analysing India's vulnerability condition . Two broad types of vulnerability indices are considered here: India-specific and global indices, including World Risk Index, the Global Climate Risk Index, the UN Multidimensional Vulnerability Index, and the Notre Dame-Global Adaptation Index.

Key Words: *Climate change, Mitigation, Hazard, Disaster, Vulnerability, Exposure, Sensitivity, Adaptive capacity, Coping Capacity, India.*

https://www.gift.res.in/wp-content/uploads/2025/07/Climate-Change-Vulnerability-in-India-An-Integrated-Assessment_Rju-Mohan-A_K-J-Joseph_-P-S-Renjith.pdf

2. Faculty involvement and publications

a. Faculty publications

Dr Vidya V Devan, Assistant Professor, Law

1. "Constitutional basis for Revenue Sharing Between The Centre and The States: A profound Analytical Study", the Academy Law Review (ISSN 2278-5108) Vol. 49, No. 2, 2025, UGC-**Care Listed Journal.**
2. Leveraging AI to Combat Tax Evasion: A GST Perspective" in the third issue of the International VAT Monitor 2025 (Volume 36), No.3 published on 12 May 2025 by International Bureau of Fiscal Documentation (IBFD) **Scopus Indexed Journal** with ISSN 09250832, 23529210. Doi.org/10.59403/16f62ng

   (https://www.ibfd.org/shop/journal/leveraging-ai-combat-tax-evasion-gst-perspective)

b. Faculty Presentations

- Dr Vidya V Devan presented a paper on "Borrowing Power in the Constitution of India: A comparative Anlysis" in the International Conference on Comparative Law (ICCL) 2025 held on 25-26 April 2025, organised by the School of Law, Galgotias University, India in collaboration with School of Business and Law, Edith Cowan University, Australia.
- Dr Akhil M P, Assistant Professor, GIFT Presented a paper titled "From Barriers to Opportunities: India's Economic Outlook in the Era of Tariff Wars" in the seminar on "Forest, Western Ghats and Plantations - Kerala held on 10-11 May 2025" jointly organized by the M. Jinadhevan Studies and Research Centre, Cheruthoni, Idukki, and the AKG Centre for Research and Studies, Thiruvananthapuram, and hosted at Marian College, Kuttikkanam.

c. Faculty Involvement

- Dr Vidya V Devan chaired the session titled" Development, Innovation And Fiscal Management" at the International Conference on "Three Decades of India's Journey Towards Local Self-Governance: Achievements, Challenges & Future Prospects" held from June 26-28 in Hybrid Mode at Mar Gregorios College of Law, Thiruvananthapuram, jointly organised by the Centre for Constitutional Studies & IQAC in association with the Institute of Parliamentary Affairs, Government of Kerala.

- Dr Vidya V Devan attended 15 Days Online National Capacity Building Programme on LAND, REAL ESTATE AND PROPERTY LAWS jointly organised by Sambhav Initiative and Pro Bono India from 2nd June,2025 to 16th June,2025.

Call for Papers: Kerala Economy Journal

Dear Scholars and Researchers,

We welcome submissions for publication in the Kerala Economy Journal, an esteemed peer-reviewed quarterly publication of the Gulati Institute of Finance and Taxation (GIFT).

Aims and scope of the journal

Kerala Economy has been a beacon of knowledge, enlightening readers with its monthly publication since its inception in September 2020. As a testament to our commitment to accessibility, we present not only the English edition but also a meticulously translated Malayalam counterpart, ensuring that our invaluable insights reach audiences far and wide. In a world of constant evolution, we adapt and evolve. From 2022 onwards, Kerala Economy has blossomed into a quarterly journal, offering deeper analyses, fresher perspectives, and richer content.

Priority is given to papers which are

- relevant to important current research in finance and taxation, macroeconomics and development issues from a public economics perspective either at regional, national, or international levels

- that offer critical evaluations, based on empirical research, of alternative theories, perspectives, or schools of thought

We welcome original research articles, insightful reviews, thought-provoking analyses, and innovative perspectives from scholars, researchers, and practitioners across the globe. Whether your expertise lies in economics, finance, taxation, or multidisciplinary fields, we encourage you to submit your work for consideration.

The editors also welcome surveys of the literature in the relevant fields.

Each research article in this journal undergoes a thorough peer-review process, which includes initial screening by the editor and anonymous peer review.

Instructions for Authors on how to submit your article

- Authors/Researchers are encouraged to submit their academically significant and original works for publication.
- Submission of any article/paper will be taken to imply that it is unpublished and not in communication for publication with any other publisher/journal.
- Every article should carry a short abstract between 150-250 words, summarising and foregrounding the significance of the article.
- The article length shall not be more than 4000 words(excluding references).
- The manuscript shall be anonymous in nature
- A separate title sheet with article title, author affiliation and communication address shall be provided
- Images/Tables shall be continuously numbered and appropriately placed in the manuscript
- For initial submissions, there are no formatting requirements. However, the authors are expected to follow a uniform formatting criteria. After acceptance, the authors shall format the article as per journal requirements.
- Spelling, dates, references and footnote numbers should be checked for accuracy.
- All the works of others used for the preparation of the article should be cited appropriately
- Referencing should be done in APA format

Articles submitted for publication will be subjected to anonymous peer-review and the authors are expected to revise/respond to the comments offered by the peer-reviewer(s) in the final submission.

After Acceptance

After accepted, the authors shall format the article as per the journal requirements and submit it to the journal. Proofs of the articles in PDF format would be sent to the author who is expected to return them to the Handling Editor within a week. Substantive alterations or additions cannot be made at this stage and hence, authors should ensure that their final submissions must be thoroughly checked for accuracy.

Journal Information

ISSN No. 2583-4436

Articles shall be submitted to *keralaeconomy@gift.res.in*

For details contact: Smt Anitha Kumary L, Associate Editor, Kerala Economy, 9495511136, Dr Aswathy Rachel Varughese, Assistant Professor, GIFT, 9897885522

Gulati Institute of Finance and Taxation (GIFT), Thiruvananthapuram, Kerala, India formerly Centre for Taxation Studies (CTS), is an autonomous institute of the Government of Kerala recognized by the Indian Council of Social Science Research (ICSSR). It is conceived as a premier national institute to promote theoretically grounded empirical research with an interdisciplinary perspective to aid policy-making at the national and sub-national levels. The uniqueness of the Institute is its faculty having a background in Commerce, Economics, and Law. GIFT offers a Ph.D. program in Social Sciences focussing on Public Economics, affiliated with Cochin University of Science and Technology (CUSAT). GIFT conducts two other programs; Post Graduate Diploma in Goods and Service Tax (PGDGST) and the Research Capacity Building Program (RCBP) besides offering training for capacity building of different stakeholders including Government officials. GIFT brings out three publications; *Kerala Economy* (Quarterly) *Kerala Tax Reporter* (Monthly) and *Weekly Updates on Finance, Taxation and the Indian Economy*.

The Governing Body and Executive Committee of GIFT consist of Scholars of Eminence and Senior Administrators representing both the Central and State Governments. Shri K N Balagopal, Minister for Finance, Government of Kerala, is the Chairperson of the Institute.

Gulati Institute of Finance and Taxation,
GIFT Campus, Chavadimukku,
Sreekariyam, Thiruvananthapuram, Kerala - 695017.
Phone : 0471 2596970, 2596980, 2590880, 2593960.
Email : keralaeconomy@gift.res.in www.gift.res.in