Trend And Pattern of Scheduled Caste Workforce Participation and Socio-Economic Development in Bihar

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ABSTRACT :

The term Scheduled Castes (SCs, hereafter) refers to the depressed classes in India where castes determine the interaction between the different social classes. Some of their standard features are untouchability, segregation, mass illiteracy, poverty, poor housing conditions and quality of life, and low levels of social mobility. The poor economic condition of SCs makes a strong case for further study into their already abysmal condition. Since work participation is an essential indicator of development in a region and reflects the socio-economic development of society, the present study deals with the trend of workforce participation rates of the SCs in Bihar as against the national level in a span of 40 years from 1971 to 2011 along with the spatial pattern of distribution of workforce 2011. The secondary data exploited for the study shows some interesting results. In Bihar, post-1971, the total workforce participation rate is higher than substantially as compared to India, which highlights the existing regional disparities for nearly four decades in the state of Bihar. The male workforce participation rate in Bihar has been recorded higher as compared to the national average as per the 1971 census; however, in 1981 and 2001, it was almost at par with the national average, while lower male workforce participation was recorded in the 1991 and 2011 census. Female workforce participation was found to be higher in 1971 and 1981, after which it was recorded lower than the national average. The highest workforce participation rate is found in Araria and Jamui during 2001 and 2011, respectively, while the lowest is found in Siwan and Saran, during the same period. The highest total female workforce participation rates were recorded in Araria and Jamui, while the lowest was found in Saran. For males, the highest participation rates were observed in Jamui and Pashchim Champaran, with the lowest rates occurring in Siwan and Saran. The study further examines the underlying factors contributing to the observed variations in workforce participation trends and spatial distribution across Bihar. The study explores the plausible reasons for the difference in trends and patterns of workforce participation in Bihar.

Keywords: Workforce participation, Scheduled Castes, depressed class, Bihar, trend analysis, pattern analysis

1. Introduction

The Scheduled Castes (SCs), historically known as "Dalits," have long been marginalized in Indian society, facing systemic exclusion from various social, economic, political, and cultural realms (Dushkin, 1967; S Lalitha, 2023). The recognition of these communities took a significant turn with the Simon Commission's endorsement of the term "Scheduled Castes" in the Indian Constitution, highlighting the pressing issues these groups confront (Dushkin, 1967). In the intricate tapestry of Indian society, caste remains a crucial determinant of social hierarchy and interactions, with SCs enduring the burdens of untouchability, segregation, illiteracy, poverty, inadequate living conditions, limited social mobility, and substandard housing (Aditya et al., 2023). The total number of Scheduled Castes in Bihar is 23, and in 2004 and 2005, the percentage of Scheduled Castes in Bihar below the poverty line was 64% (Ministry of Social Justice and Empowerment)."

In the state of Bihar, where a diverse demographic landscape is coupled with persistent economic challenges, the SC population constitutes a vital segment of the labor force. Recent studies suggest a gradual improvement in workforce participation among SCs in Bihar, attributed to government initiatives and affirmative action policies designed to enhance educational and employment opportunities (Rani, 2020; Kumar & Singh, 2021). However, despite these strides, SCs still grapple with disparities in income, employment quality, and access to essential resources, which hinder their overall socio-economic development (Yadav, 2019). The gradual uptick in workforce participation among SCs can be linked to government initiatives, reservation policies, and social mobilization efforts (Kumar, 2021).

As per the Census of India (2011), SCs in Bihar account for 15.9% of the population, yet their workforce participation reveals significant challenges tied to caste-based exclusion. Predominantly, Bihar's SCs find employment in low-wage, informal sector jobs, facing significant barriers to accessing formal sector employment (Thorat & Newman, 2010). A range of studies has investigated SCs' occupational structures, with notable contributions from Mohammad (1987), Gosal (1991), and Tiwari (1999) regarding their work participation and economic roles. Tripathi (1999) delved into the origins of SC backwardness, while Kapoor (2006) focused on the work participation of disadvantaged communities. More recently, Butool (2014) examined SC

workers in Uttar Pradesh's secondary sector, yet a comprehensive comparative analysis of Bihar's SC workforce participation against national trends remains relatively unexplored.

Economic conditions significantly shape SC participation in the workforce, particularly in Bihar, where agricultural labor has historically been the primary livelihood source (NSSO, 2011). However, ongoing shifts in the economic landscape, including a decline in agricultural employment and the rise of non-agricultural sectors, have profound implications for SC workforce participation rates (Tiwari, 1999; Thorat et al., 2010). Despite these transformations, SC communities continue to encounter substantial barriers, such as restricted access to education and skill development opportunities (Jodhka, 2012; Chamar, 2016). Furthermore, entrenched discrimination and deeply rooted caste inequalities persist, inhibiting SCs from fully engaging in the labor market, irrespective of broader economic advancements (Thorat, 2007; Deshpande, 2011).

This study aims to investigate the workforce participation of SCs in Bihar, focusing on the interplay of economic, social, and cultural factors that shape their employment patterns. It will also evaluate the effectiveness of government policies and affirmative action programs in addressing these challenges. By comparing trends in Bihar with national data, the research seeks to provide insights into the socio-economic dynamics of SC workforce participation and offer recommendations for enhancing their inclusion in the evolving economy of the state.

2. Literature review

The socio-economic landscape of Bihar is marked by a complex interplay of caste dynamics, economic policies, and social interventions. This literature review focuses on the trends and patterns of Scheduled Caste (SC) workforce participation and its impact on socio-economic development, the socio-economic conditions of SCs in Bihar have been characterized by marginalization and limited access to resources. The socioeconomic status of Scheduled Castes in Bihar has been influenced by historical caste hierarchies, colonial policies, and post-independence affirmative action. Scholars such as *Béteille (2002)* and *Omvedt (2005)*. highlight the entrenched inequalities and the legacy of discrimination that persistently hinder SCs from achieving equitable socio-economic status. Research by **Kumar and Singh (2019)** highlights that systemic barriers and historical inequalities have led to lower levels of educational attainment and skill development among SC populations, affecting their workforce participation. Recent studies, including those by **Mishra (2021) and Jha (2020),** indicate a gradual increase in SC workforce participation in Bihar Research by Sinha (2022) shows that migration for better employment opportunities has also influenced SC workforce dynamics, with many migrating to urban areas for work, thus impacting local economies. The socio-economic development of SCs in Bihar is multifaceted. **Choudhary and Prasad (2020)** argue that while there have been improvements in income and employment, disparities persist. Studies indicate that educational initiatives aimed at SCs have had mixed results. **Verma (2023)** notes that while enrolment rates have increased, dropout rates remain high, affecting long-term socio-economic development. Discriminatory practices in workplaces limit the advancement of SC workers. **Rai (2019)** highlights that social stigmas attached to caste often prevent SC individuals from accessing better job opportunities. Access to Resources: Limited access to financial services, healthcare, and education remains a barrier. Research by **Patel (2022) points** out that infrastructural deficits in rural areas exacerbate these challenges. Research indicates that the workforce participation rate among Scheduled Castes in Bihar has been gradually increasing. According to the 2011 Census, the SC workforce participation rate stood at approximately 36%, reflecting a slight improvement from previous decades **(Kumar & Singh, 2018).** However, the quality of employment remains a significant concern. Many SC individuals are employed in informal sectors, characterized by low wages and job insecurity **(Rai, 2020).** Several studies have examined the role of government initiatives in enhancing SC workforce participation. Programs such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) have provided job security and increased earnings for SC workers in rural areas **(Bhatia, 2017).** However, the effectiveness of these programs varies across regions and is influenced by local governance and implementation challenges **(Jha, 2019).** The socio-economic development of SC communities in Bihar is intricately linked to their workforce participation. Research by **Verma (2021)** suggests that higher participation rates in the labor market correlate with improved access to education and healthcare for SC families. Furthermore, increased income from employment opportunities has contributed to enhanced living standards and greater social mobility within these communities. Despite progress, significant challenges remain. Discrimination in the labor market, inadequate educational facilities, and social stigma continue to impede the full participation of SC individuals in the workforce **(Das, 2020).** Additionally, the COVID-19 pandemic has exacerbated existing inequalities, disproportionately affecting SC workers in informal sectors who lack social safety nets **(Pandey & Sinha, 2021).**

3. Aims and objectives

1. To analyze the trends of SC workforce participation in Bihar, India, 1971-2011;
2. 2. To investigate the industrial classification of SC workers in Bihar, 1971- 2011
3. To examine the geographical patterns of regional disparities of SC Total workforce participation in Bihar, 2011
4. To find out the relationship between Scheduled Caste Workforce participation and levels of development in Bihar

4. Description of the study area

India's eastern state of Bihar is situated between the latitudes of 24°20'10" and 27°31'15 "N and the longitudes of 83°19'50" and 88°17'40 "E. It is a landlocked state in a subtropical part of the temperate zone. Bihar occupies a transitional position in terms of climate, economy, and culture because it is situated between the humid West Bengal in the east and the sub-humid

Uttar Pradesh in the west. It is amongst India's most densely populated states with a population density of 1102 person/Km2. With a total population of about 104 million, it shares about 8.6 percent of the total population of the country; and is the third most populated state after Uttar Pradesh and Maharashtra in India. With a total area of 94163 km2, Bihar is the twelfth largest state of India. The Capital city Patna is the only million-plus city in the state and the largest urban agglomeration.
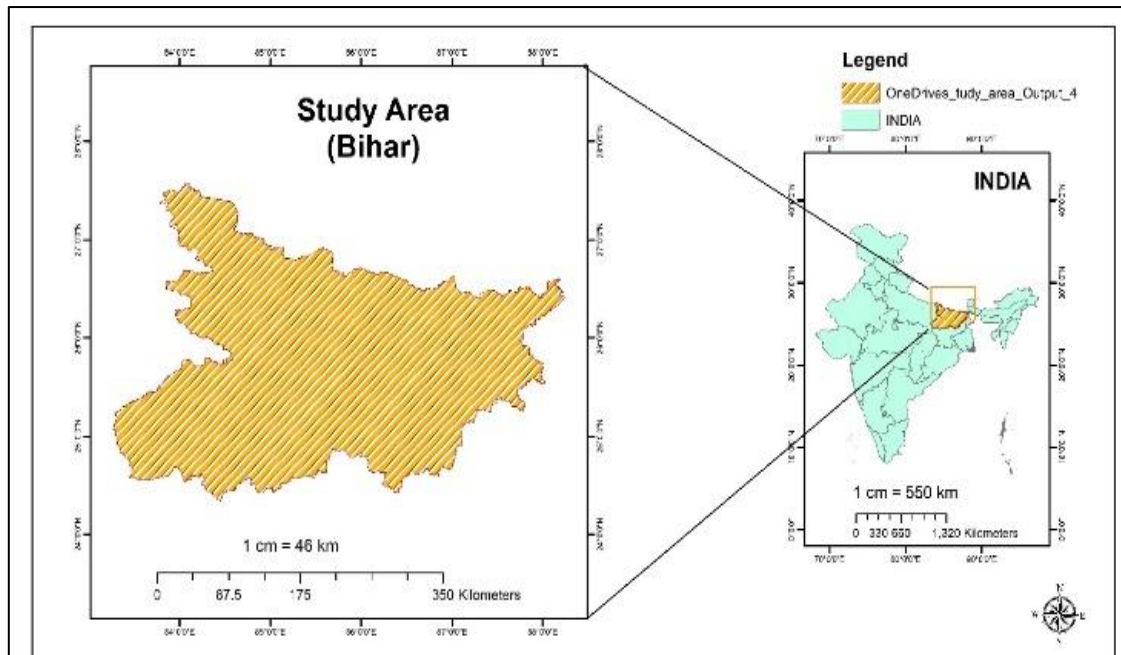
Bihar shares borders with Uttar Pradesh to the west, Nepal to the north, the northern section of West Bengal to the east, and Jharkhand to the south. Geographically, it is situated in the lower and middle Ganga plain, which is drained by various rivers along with the river Ganga. Administratively, the state is divided into nine divisions, 38 districts, and 534 blocks. The river Ganga divides states into two parts e.g., North Ganga Plain and South Ganga Plain. The districts situated north of river Ganga, known as districts of the north Ganga plain, areAraria, Begusarai, Darbhanga, Gopalganj, Katihar, Khagaria, Kishanganj, Madhepura, Madhubani, Muzafarpur, Pashchim Champaran, Purba Champaran, Purnia, Saharsa, Saran, Samastipur, Sheohar, Sitamarhi, Siwan, Supaul, and Vaishali. The districts located south of the river Ganga are known as districts of the South Ganga plain. Out of 38 districts of the state 17 districts are found in the south Ganga plain, which are- Arwal, Aurangabad, Banka, Bhagalpur, Bhojpur, Buxar, Gaya, Jamui, Jehanabad, Kaimur, Lakhisarai, Munger, Nalanda, Nawada, Patna, Rohtas, and Sheikhpura. According to the Census of India, 2011, about 70 per cent of Bihar's working population is employed in the agricultural and allied sector as laborers or cultivators, with the remaining 30 per cent going into the home sector or other occupations. This makes Bihar an agricultural prime state. The sectoral economic dynamics show that the proportion of the primary sector fell from 25.8 percent to 19.7 percent between 2011–12 and 2018–19, while the percentage of the tertiary sector increased from 55.5 to 61.2 percent over the same period. While the percentage of the secondary sector was 18.8 percent in 2011–12 and slightly higher at 19.1 per cent in 2018–19 (Bihar Economic Survey, 2019-20). As a result, Bihar is characterized by one of the most socio-economically backward states of India mostly renowned for lawlessness, corruption, foods, and droughts. (Datta et al., 2014; Sahu et al., 2018; Mishra, 2019; Raichaudhary, 2019).

5. Database and Methodology

The present study aspires to investigate district-level Scheduled Caste workforce participation in relation to the broader socio-economic development patterns across Bihar. This research relies entirely on secondary data sources, primarily extracted from the *Census of India* (1971, 1981, 1991, 2001, and 2011), along with statistical publications from the Statistical Division, State Planning Institute of Bihar. Complementary data have also been obtained from the *Livestock Census (2012)*, *Bihar Economic Survey (2019–20)*, and *Bihar Statistical Handbook (2018)*.

A total of twenty-six indicators have been selected, encompassing both social and economic dimensions. These indicators aim to provide a comprehensive understanding of regional variation in workforce participation and development among Scheduled Castes.

Workforce Participation Rate (WFPR) Formula

To compute workforce engagement, the following standard formulas are employed:

- **Total WFPR** = (Total Workers / Total Population) × 100

- **Male WFPR** = (Male Workers / Male Population) × 100

- **Female WFPR** = (Female Workers / Female Population) × 100

Z-score test will be used to determine the areal variation of household infrastructure and development. This test will be conducted in two steps.

In the first step, the raw data for each variable that determines the areal variation of household infrastructure and development will be converted into a standard score.

$$Z_{ij} = \frac{X_{ij} - \overline{X_i}}{\sigma_i}$$

Where, Z_{ij} = Standardized value of the variable i in district j.

X_{ij} = Actual value of variable i in district j.

$\overline{X_i}$ = Mean value of variable i in all districts.

σ_i = Standard deviation of variable i in all districts.

In the second step, the z-scores of all variables will be added district wise and the average of these variables will be calculated, generating the composite score (CS) for each district, which can be algebraically expressed as:

$$CS = \frac{\sum Z_{ij}}{N}$$

Where CS denotes the composite score, N denotes the number of indicators (variables), and Zij denotes the z-scores of all variables I in district j. Positive values for a district's Z-score explain a high level of development in terms of household infrastructure, while negative values show a low level of development in these areas.

The term "correlation"

Refers to a method of identifying the connection between two variables. These variables are household infrastructure (dependent variables) and development (independent variables). The correlation coefficient is either +1 or -1 when all actual values lie exactly on the regression line, making the prediction precise and the relationship perfect. If this is not the case, the relationship between the variables is imperfect. In such scenarios, the correlation coefficient ranges between –1 and +1. In this PhD thesis, Pearson's correlation coefficient will be used to measure the relationship between the dependent and independent variables. Pearson's correlation coefficient is calculated using the following formula:

$$r = \frac{\sum xy - \sum x \sum y / n}{\sqrt{\sum x^2 - \frac{(\sum x^2)}{N}} \sqrt{\sum y^2 - \left(\frac{\sum y^2}{N}\right)}}$$

- **Where,**
- r = Coefficient of correlation x,y = The two given

variables

N = Number of observations

Census of India	Total scheduled caste workforce participation (India)	Total scheduled caste workforce participation (Bihar)	Total workforce participation (Bihar)
1971	36.34	38.97	32.28
1981	39.58	39.38	32.35
1991	39.25	37.4	27.41
2001	40.4	39.74	33.7
2011	40.87	36.63	33.36

6. **Trends of Scheduled Caste Workforce Participation**

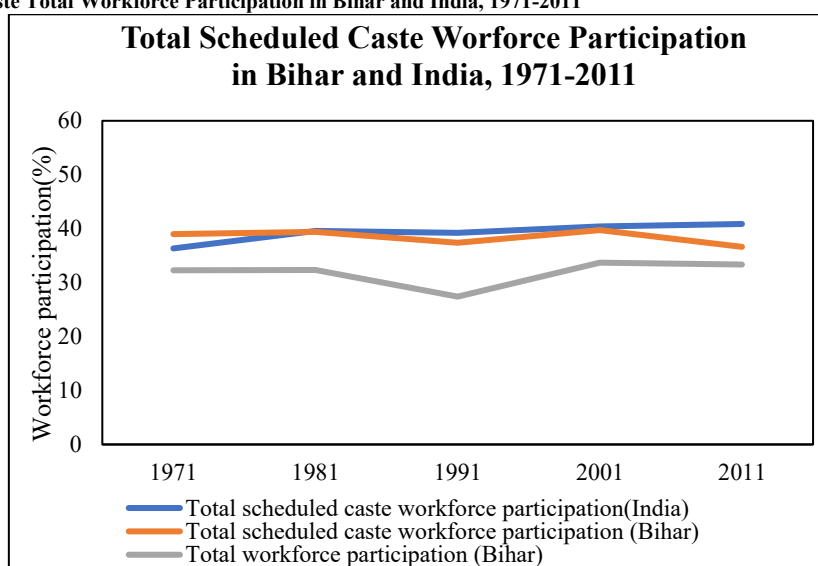   **Trends of Workforce Participation of Total Scheduled Caste Population in Bihar and India, 1971-2011**

   Table .1

Results and discussion

The percentage of economically active individuals in the workforce is not constant; it fluctuates over time and varies across regions, primarily due to factors such as population demographics, the economic structure of the region, educational attainment, technical knowledge, government policies, and the health of the population. Apart from government policies, most of these factors tend to be less favorable for the Scheduled Caste population. The trends in Scheduled Caste workforce participation are examined in comparison to the overall population trends in Bihar and India's Scheduled Caste population, allowing for a comparative analysis with other demographic groups. This analysis is conducted by gender and place of residence.

It is inferred from the table no. 4.1 Scheduled Castes workforce participation rates in Bihar Between 1971 and 2011, workforce participation among Scheduled Castes in Bihar and India displayed notable trends. In India, participation increased from 36.34% in 1971 to 40.87% in 2011. In Bihar, the participation rate was higher initially at 38.97% in 1971, peaking at 39.74% in 2001 before declining to 36.63% by 2011. Despite these fluctuations, the overall workforce participation in Bihar remained low, ranging from 27.41% to 33.7% during the same period. These trends highlight the challenges faced by Scheduled Castes in Bihar in achieving sustained workforce engagement compared to national figures.

Trends of Scheduled Caste Total Workforce Participation in Bihar and India, 1971-2011

Trends of Scheduled Caste Total Male Workforce Participation in

Bihar and India, 1971-2011

Table 2

Census of India	Total Male scheduled caste workforce participation (India)	Total Male scheduled caste workforce participation (Bihar)	Total Male workforce participation (Bihar)
1971	54.06	55.62	52.16
1981	53.67	53.52	50.18
1991	51.48	50.11	47.92
2001	51	49	47.37
2011	52.75	47	46

Source: Census of India, 1971, 1981, 1991, 2001 and 2011

Between 1971 and 2011, male Scheduled Caste workforce participation in both India and Bihar experienced a general decline. In India, male Scheduled Caste participation decreased from 54.06% in 1971 to 52.75% in 2011. Bihar followed a similar downward trend, with male Scheduled Caste participation dropping from 55.62% in 1971 to 47% in 2011. Meanwhile, Bihar's total male workforce participation also declined, from 52.16% in 1971 to 46% in 2011. These trends reflect broader economic and social challenges, underscoring the need for interventions to improve workforce participation rates among male Scheduled Castes in Bihar.
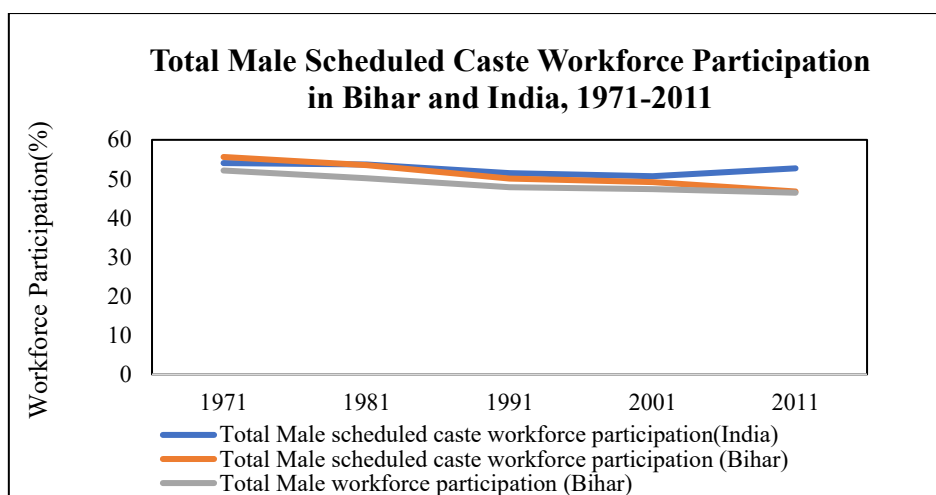
Fig.4.2

Trends of Scheduled Caste Total Female Workforce Participation in Bihar and India, 1971-2011.

Table 3

Census of India	Total Female scheduled caste workforce participation (India)	Total Female scheduled caste workforce participation (Bihar)	Total Female workforce participation (Bihar)
1971	17.39	21.67	8.88
1981	24.46	24.88	13.5
1991	25.98	23.5	14.86
2001	29.4	29.54	18.84
2011	28.30	25.64	19.07

**Source: Census of India, 1971, 1981, 1991, 2001 and 2011**
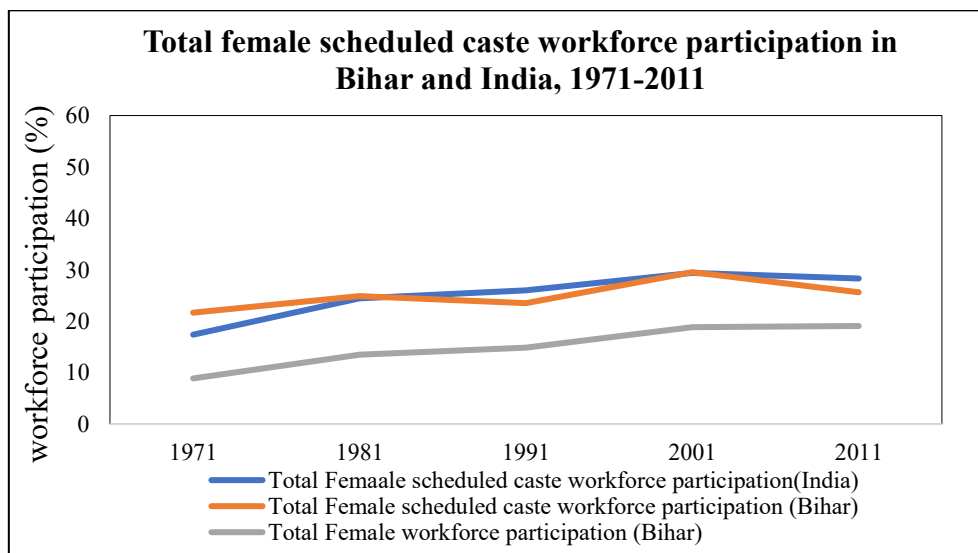
Between 1971 and 2011, female Scheduled Caste workforce participation in India and Bihar showed fluctuating trends. In India, participation among Scheduled Caste women rose from 17.39% in 1971 to a peak of 29.4% in 2001, before slightly declining to 28.3% in 2011. In Bihar, female Scheduled Caste workforce participation followed a similar pattern, peaking at 29.54% in 2001 and then dropping to 25.64% in 2011. Overall female workforce participation in Bihar, though consistently lower, increased steadily from 8.88% in 1971 to 19.07% in 2011, reflecting gradual improvements in women's labor participation across the stat

7.   Industrial classification of SC workers in Bihar, 1971- 2011

Year	Cultivator	Agricultural labour	Household Industry	Other Workers	Total Worker
1961	0.76	0.24	0.12	1.96	3.08
1971	0.35	2.38	0.07	1.19	3.99
1981	0.55	2.92	0.09	0.44	4.00
1991	0.69	3.19	0.08	0.46	4.41
2001	0.41	4.02	0.17	0.58	5.19
2011	0.41	4.48	0.09	1.09	6.07

Table 4

Source: Census of India, 1961,1971, 1981, 1991, 2001 and 2011
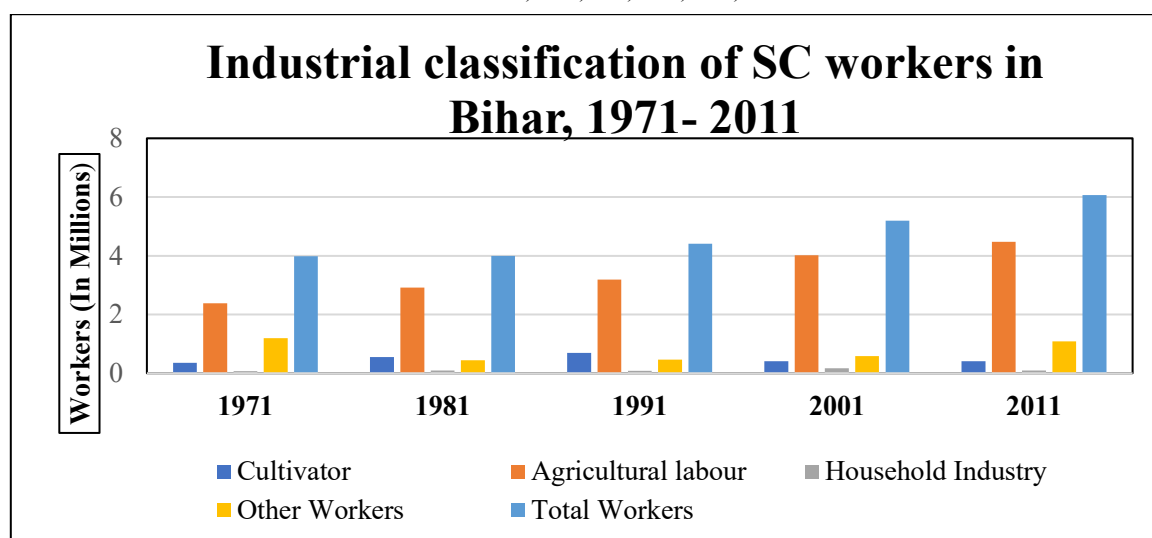
Cultivators The proportion of SC workers as cultivators increased from 0.35 in 1971 to 0.69 in 1991, but then dropped sharply to 0.41 in 2001 and remained the same in 2011. This suggests that the number of SC workers owning or directly working their land decreased significantly in the later decades. Agricultural Labor The proportion of SC workers in agricultural labour consistently increased from 2.38 in 1971 to 4.48 in 2011. This indicates a shift towards wage labor, suggesting fewer SC individuals owned land but were instead working for others in agricultural roles. Household Industry The proportion of SC workers involved in household industries remained relatively low. The slight peak in 2001 (0.17) shows that there was some temporary growth in household-based industries (such as small-scale crafts or goods production) but it returned to low levels (0.09) by 2011

The "Other Workers" category fluctuated slightly, starting at 1.19 in 1971, dropping to 0.44 in 1981, and then rising again to 1.09 by 2011. This category includes employment in sectors other than agriculture and household industries, suggesting some diversification in employment opportunities over time. Total Workers The total SC workforce in Bihar grew from 3.99 in 1971 to 6.07 in 2011, indicating an overall expansion of employment within the SC community. However, this growth was primarily driven by increased agricultural labor roles

8. Spatial Distribution of Scheduled Caste Work Participation in Bihar, 2011

Table 5

Score	Category	No. of districts	Percentage of districts
2.134 to 1.097	**Very high**	**9**	**23.68**
0.814 to 0.231	**High**	**6**	**15.78**
0.099 to -0.403	**Medium**	**7**	**18.42**
-0.558 to -1.202	**Low**	**14**	**36.84**
-1.610 to -2.106	**Very low**	**2**	**5.26**

Calculated by the author
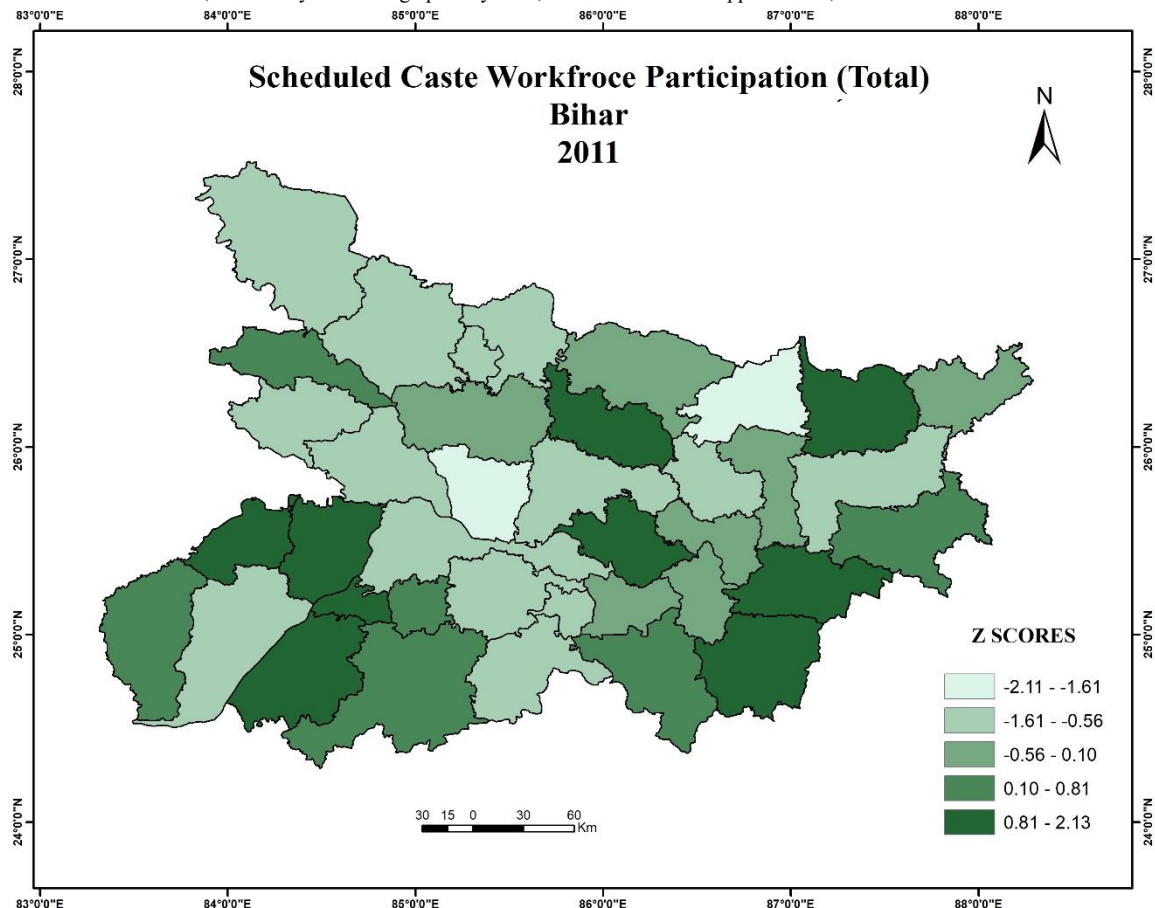
SCHEDULED CASTE WORKFORCE PARTICIPATION (TOTAL)

The work participation is marked with notable variations in distribution among the state districts. It varies from 2.134 to -2.106, scores. This variation may conveniently be grouped into five grades of below score -1.610 to -2.106 (very low), --0.558 to -1.202 score (low), 0.099 to -0.403 score (medium), 1.100 to 0.231 score (high) and -1.610 to -2.106 score and over (very high). The category-wise analysis is presented as follows:

Very High; The districts of Araria (2.134), Arwal (2.081), Aurangabad (1.387), Banka (1.344), Begusarai (1.274), Bhagalpur (1.230), Bhojpur (1.212), Buxar (1.100), and Darbhanga (1.097) exhibit significantly high workforce participation rates. This indicates that these areas provide favorable conditions for Scheduled Castes, possibly due to successful government initiatives, better access to employment opportunities, and supportive local economies that encourage participation in the workforce.

High; Gaya (0.814), Gopalganj (0.803), Jamui (0.440), Jehanabad (0.393), Kaimur (Bhabua) (0.240), and Katihar (0.231) are classified as High. While these districts show positive participation rates, they are not as robust as those in the Very High category. The presence of certain challenges may hinder further growth, yet these districts still show potential for improvement through targeted interventions and programs aimed at enhancing employment prospects

Medium The districts of Khagaria (0.099), Kishanganj (0.039), Lakhisarai (-0.116), Madhepura (-0.126), Madhubani (-0.143), Munger (-0.323), and Muzaffarpur (-0.403) fall into the medium category. These districts have close-to-zero or slightly negative participation rates, indicating that workforce participation for Scheduled Castes is a concern and requires focused efforts to improve employment conditions and opportunities.

Very Low **Vaishali (-1.20), Siwan (-1.61), and Saran (-2.11)** are classified as Very Low. The severely negative z-scores highlight critical challenges faced by women in these districts, which may include high poverty rates, limited educational opportunities, and lack of healthcare services.

Scheduled Caste Workfroce Participation (Total)
Bihar
2011

Z SCORES
-2.11 - -1.61
-1.61 - -0.56
-0.56 - 0.10
0.10 - 0.81
0.81 - 2.13

Low: The "low" category, which includes Nalanda, Nawada, Pashchim Champaran, Patna, Purba Champaran, Purnia, Rohtas, Saharsa, Samastipur, Saran, Sheikhpura, Sheohar, Sitamarhi, and Siwan, sees participation rates between -0.558 and -1.202. These regions face more severe structural barriers to workforce participation, likely due to high levels of poverty, poor education, and insufficient government support. Scheduled Castes in these districts are more socially and economically marginalized.

Very Low: Finally, Supaul and Vaishali, with workforce participation rates between -1.610 and -2.106, fall into the "very low" category. These districts reflect the most extreme cases of economic marginalization, where Scheduled Castes are severely underrepresented in the workforce. Deep-rooted poverty, caste-based discrimination, and a lack of access to education and job opportunities likely exacerbate their low participation rates, calling for urgent policy interventions.

In conclusion, while some districts show promise, the majority of Bihar's districts struggle with low or negative workforce participation rates among the Scheduled Caste population, underscoring the need for targeted socio-economic reforms and inclusive development initiatives.

9.Correlation between Scheduled Caste Workforce participation and levels of development in Bihar and the Independent Variables

Correlation (X1: SC Workforce Participation Rate - Total)			
	Indicator	**Pearson's r**	**Nature of Correlation**
X2	**Growth Rate of Scheduled Caste Population**	**0.321**	**Positive**
X3	**Density of Scheduled Caste Population**	**-0.201**	**Negative**

X4	% of SC Population to Total Population	0.297	Positive
X5	Sex Ratio of SC Population	0.114	Positive
X6	Child Sex Ratio of SC Population	0.369	Positive
X7	% of SC Urban Population	0.115	Positive
X8	% of BPL Families	0.144	Positive
X9	Per Capita Net Sown Area	0.231	Positive
X10	Cropping Intensity	-0.042	Negative
X11	% of Irrigated Area	0.087	Positive
X12	Registered Factory Workers per Lakh	-0.21	Negative
X13	Per Capita Income	-0.136	Negative
X14	Farm Mechanization Expenditure for SCs (in Lakh ₹)	0	Neutral
X15	Road Length per District	0.051	Positive
X16	Literacy Rate of SC Population	-0.561	Strong Negative
X17	Gross Enrolment Ratio in Primary School	0.063	Positive
X18	Pupil Teacher Ratio	0.109	Positive
X19	Number of Colleges	-0.189	Negative
X20	Number of Hospitals	-0.205	Negative
X21	Number of Beds per Lakh Population	-0.084	Negative
X22	% of Electrified Villages	-0.07	Negative
X23	Registered Motor Vehicles on Road	-0.059	Negative
X24	Number of Police Stations	-0.003	Negative
X25	SC Enrolment in Primary School (in lakh)	0.048	Positive
X26	SC Enrolment in Upper Primary School (in lakh)	-0.116	Negative
*Significant at p < 0.05 | **Significant at p < 0.01			

The correlation analysis between **Scheduled Caste (SC) Work Participation Rate** (Y1) and 25 selected socio-economic and demographic indicators for Bihar's 38 districts provides crucial insights into the spatial dynamics of SC engagement in economic activity. Among all variables, **X16 (Literacy Rate of SC Population)** exhibits the **strongest negative correlation** with SC work participation ($r = -0.561$, significant at the 0.01 level). This counterintuitive relationship indicates that as literacy among SCs increases, their overall work participation tends to decline. This may be explained by **educational aspirations**, delayed entry into the workforce, or **lack of suitable job opportunities** aligned with educational qualifications, especially in rural areas.

Additionally, **X2 (Growth Rate of SC Population)** and **X6 (Child Sex Ratio among SCs)** are **positively correlated** with SC work participation ($r = 0.321$ and **0.369**, respectively; both significant at the 0.05 level). These findings suggest that districts experiencing **higher demographic momentum and improved gender balance** among children are more likely to exhibit higher engagement of the SC population in work. This can reflect a more inclusive demographic and socio-economic environment encouraging labor force participation.

Other variables such as **X3 (SC Density)**, **X19 (Poverty Rate)**, and **X26 (Health Index)** show weak or statistically insignificant correlations. This suggests that these factors, while important for overall development, may not **directly influence SC work participation** in a uniform way across Bihar. Their indirect effects might be moderated by **caste-based occupational patterns**, landlessness, or local labor market structures.

Overall, the correlation analysis reveals that **education alone does not ensure higher work participation** among SCs. There is a **need for integrated policies** linking education with skill development, employment generation, and inclusive labor markets to effectively translate development inputs into higher participation

Conclusion

This study has examined the trends and patterns of Scheduled Caste (SC) workforce participation in Bihar from 1971 to 2011, uncovering persistent disparities in employment engagement across gender, region, and sector. Although there has been a marginal improvement in the overall participation of SCs in the workforce, the pace of progress has been uneven and insufficient. A significant proportion of SC workers remain concentrated in agricultural labor, with minimal transition into higher-paying, non-agricultural sectors. This stagnation reflects the deep-rooted structural barriers and lack of targeted socio-economic opportunities for SC populations.

The correlation analysis further reveals a nuanced relationship between SC workforce participation and developmental indicators. A strong negative correlation with the SC literacy rate (X16, r = –0.561, p < .01) suggests that increased educational attainment does not directly translate into employment opportunities for SCs. Conversely, positive correlations with the SC population growth rate (X2) and child sex ratio (X6) (r = 0.321 and 0.369, respectively; p < .05) indicate demographic vitality as a contributing factor to labor force engagement. These findings highlight a critical disconnect between human capital development and labor market absorption for marginalized communities.

Spatial disparities also underscore the unequal distribution of workforce engagement. Districts such as Araria and Arwal exhibit higher SC participation, possibly due to localized policy implementation and access to welfare schemes. In contrast, districts like Saran and Siwan continue to reflect chronic underemployment and systemic exclusion.

In conclusion, SC workforce participation in Bihar is shaped by intertwined social, demographic, and economic factors. Addressing these challenges requires integrated policy measures that link education, skill development, inclusive employment strategies, and caste-sensitive planning to foster equitable and sustainable development (Planning Commission, 2012; Government of Bihar, 2021)

REFERENCES.

1. Desai, S., Dubey, A., Vanneman, R., & Banerji, M. (2009). *India Human Development Survey (IHDS)*. University of Maryland & NCAER. https://ihds.umd.edu/
2. Dreze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.
3. Government of Bihar. (2021). *Bihar Economic Survey 2020–21*. Finance Department, Government of Bihar. https://state.bihar.gov.in/
4. Government of India. (2011). *Census of India 2011: Primary Census Abstract – Scheduled Castes*. Office of the Registrar General & Census Commissioner. https://censusindia.gov.in/
5. Government of India. (2013). *Socio-Economic and Caste Census 2011*. Ministry of Rural Development. https://secc.gov.in/
6. Ministry of Social Justice and Empowerment. (2018). *Annual Report 2017–18*. Government of India. https://socialjustice.gov.in/
7. Ministry of Labour and Employment. (2021). *Annual Report on Employment and Unemployment Statistics*. Government of India.
8. NSSO. (2015). *Employment and Unemployment Situation among Social Groups in India* (NSS 68th Round). National Sample Survey Office, Ministry of Statistics and Programme Implementation.
9. Planning Commission. (2012). *Report of the Working Group on the Empowerment of Scheduled Castes during the Twelfth Five Year Plan (2012–17)*. Government of India.
10. Rawat, R. S. (2011). *Forgotten histories: Dalit politics and the state in India (c. 1947–1960)*. Cambridge University Press.
11. Sharma, A. N. (2010). *Social exclusion and the effectiveness of poverty programmes*. Indian Journal of Labour Economics, 53(2), 295–306.
12. Singh, K. S. (1998). *The Scheduled Castes*. Oxford University Press.
13. Thorat, S., & Newman, K. S. (2007). *Caste and economic discrimination: Causes, consequences and remedies*. Economic and Political Weekly, 42(41), 4121–4124.
14. Thorat, S., & Sabharwal, N. S. (2011). *Outcast and deprived: A study on the socio-economic status of Scheduled Castes*. Indian Institute of Dalit Studies.
15. World Bank. (2020). *Social Inclusion in India: Evidence from the India Social Inclusion Survey*. https://www.worldbank.org/