ARTHA VIJÑĀNA

Articles

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From September 2022, the Journal announced an expansion in its focus. The journal would hence forth have a broader and an inter-disciplinary approach. Articles in the areas of economic sociology, political economy are also welcome. *Artha Vijnana* is committed to publishing high quality research, aimed at the broad audience of academicians, practitioners and policy makers, across South Asia and beyond.

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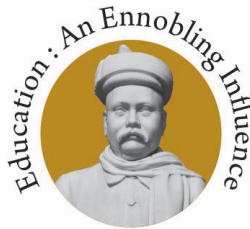
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Artha Vijñāna

Gopal Krishna Gokhale

1.	Place of Publication	:	Pune (India)
2.	Periodicity of its Publication	:	Quarterly
3.	Printer's Name	:	Ajit Ranade
	(Whether citizen of India?)	:	Indian
	(If foreigner, state the country of origin)	:	-
	Address	:	Gokhale Institute of Politics and Economics (Deemed to be University u/s 3 of the UGC Act, 1956), BMCC Road Pune 411 004 (India).
4.	Publisher's Name	:	Ajit Ranade
	(Whether citizen of India?)	:	Yes
	(If foreigner, state the country of origin)	:	-
	Address	:	Gokhale Institute of Politics and Economics (Deemed to be University u/s 3 of the UGC Act, 1956), BMCC Road Pune 411 004 (India).
5.	Editor's Name	:	Ajit Ranade
	(Whether citizen of India?)	:	Yes
	(If foreigner, state the country of origin)	:	-
	Address	:	Gokhale Institute of Politics and Economics (Deemed to be University u/s 3 of the UGC Act, 1956), BMCC Road, Pune 411 004 (India).
6.	Names and addresses of individuals who own the newspaper and partners or share holders holding more than one per cent of the total capital.	:	Gokhale Institute of Politics and Economics (Deemed to be University u/s 3 of the UGC Act, 1956), BMCC Road Pune 411 004 (India).

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Artha Vijñāna

VOL. LXV NO. 4   **December 2023**

CONTENTS

Articles

Regional Disparity and Convergence in Learning among Rural Children: An Analysis of Indian States

Mallika Sinha and Rama Pal

The study examines differences in learning outcomes across Indian states over ten years from 2009 to 2018. Even today, some states exhibit learning outcomes that are appallingly low and children face disproportionate disadvantages. The paper finds that most of the states show a downward movement of learning achievement over the study period. The fixed effects model is used to understand how the learning indicators are associated with the school infrastructure and the socio-economic background of the state. The regression analysis underscores the importance of female literacy rate, social background and NSDP per capita to predict learning outcomes among children from rural India. We find evidence in favour of σ-convergence in mathematics achievement but not in reading achievement. Also, Indian states exhibit the presence of absolute and conditional β-convergence in the learning indicators.

Keywords: Learning outcomes, Regional disparity, Convergence, Rural India

I Introduction

India has witnessed impressive progress in terms of school enrolments in recent years. However, despite this increasing enrolment, many children are unable to acquire even basic literacy and numeracy skills (Pritchett 2013, Alcott and Rose 2017, Sandefur 2018, Iyer, *et. al.* 2020). Across countries, literature shows that learning outcomes heavily depend on regional differences in demographic characteristics, school provision, education policies, job opportunities and local infrastructure (Alcott and Rose 2017). This pattern is also observed in the Indian context. As education is on the concurrent list of the Indian constitution, state governments play an important role in the public provision of education. Historic evidence shows that variations in state-specific factors and efforts generate significant differences among educational outcomes across Indian states (Besley, *et. al.* 2007, Jha, *et. al.* 2008). Some states exhibit abysmally poor learning outcomes, whereas others have performed remarkably. Given this backdrop, the paper aims to examine the disparities in learning outcomes across Indian states by taking into account some state-specific factors. The contribution of this study is

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twofold: (1) we analyse the variations in learning outcomes across Indian states over time and (2) using bivariate and multivariate analysis, we investigate the role of state-specific factors in determining the divergent performance of states in the learning outcomes of children.

Primary school enrolment in India has been almost universalized (Kingdon 2007). The rise in the net primary enrolment in India has been so impressive over the last few decades that now it exceeds 90 percent in most of the country (Das and Zajonc 2010). However, learning outcomes are dismal (Kingdon 2007, Banerjee, *et. al.* 2007). Goyal and Pandey (2012) find that in 2007, the majority of the children in grades four and five could not achieve adequate scores in mathematics, reading comprehension, and word meaning in the Indian states of Uttar Pradesh and Madhya Pradesh. Muralidharan and Zleneik (2013), using a unique panel data set for primary grade children in Andhra Pradesh, find that learning levels in maths and language are not only low but also the learning trajectories are poor over time. This implies that policies effective at expanding school enrolment might not be helpful in raising learning outcomes (Banerjee, *et. al.* 2007). Also, Muralidharan (2013) points out that one of the reasons that improvement in learning outcomes is not yet at par with improvements in school quality, which is indicated by school inputs, is due to the failure of education policies to prioritize learning outcomes. Education policies and outcomes at the national level mask the differences at the sub-national levels. This paper attempts to study educational policies and factors affecting educational outcomes at the state level.

Literature shows that educational policies and efforts adopted by state governments differ considerably due to social norms, institutions and historical legacies. For instance, Himachal Pradesh witnessed a 'schooling revolution' in the early 1970s as an outcome of state action, community participation, public response, parental demand and social equality (Dreze and Sen 2002 and Agarwal, 2014). The resulting changes in the schooling system are responsible for the stellar performance of Himachal Pradesh in learning outcomes (Agarwal 2014). The Education Guarantee Scheme[1] (EGS) of Madhya Pradesh and the Shiksha Karmi Project[2] of Rajasthan are notable interventions aimed at improving primary education in these states. The states of Gujarat, Karnataka, Tamil Nadu and Kerala reaped the benefits of early recognition and investment in primary education due to the erstwhile policies endorsed by the rulers of Baroda, Mysore, Madras and Travancore regarding the public provision of compulsory primary education (Mehrotra 2006, Jha, *et. al.* 2019). At the same time, other states, such as West Bengal and Bihar, lagged behind due to a lack of decentralization, populist policies and ineffective implementation of government policies (Acharya 2002, Mehrotra 2006 and Jha, *et. al.* 2008).

Differences among education policies manifest themselves in variations in school infrastructure. The school infrastructure has two main components, namely, teachers and physical infrastructure. Tilak (2018) finds that infrastructure and teachers are related to learning outcomes. Chatterjee, *et. al.* (2018) find large

disparities in infrastructure and teacher quality across states. They report better performance of the extreme Northern and Southern states on these parameters as compared to the states in the Northern region and some of the states in the Eastern region. Tilak (2018) notes a good Pupil-Teacher Ratio (PTR) is one of the factors strongly associated with better school participation rates, the continuation of children in schools and their learning levels. Some studies find that libraries in schools positively impact learning outcomes (Murillo and Roman 2011, Glewwe, *et. al.* 2011, Chudgar, *et. al.* 2015). On the contrary, Borkum, *et. al.* (2012) find libraries in school do not impact the academic achievement of children. However, libraries provide children with a large variety of books that create a fondness for reading and reinforce children's reading and other learning skills. It also aids children and teachers in supplementing their learning and class teaching activities. (Murillo and Roman 2011). Chakraborty and Jayaraman (2019) find a significant and positive impact of midday meals on learning outcomes in the long run but a negligible impact in the short run in India. Vermeesch and Kremer (2005) and McEwan (2013) do not find the impact of the school feeding program on learning achievements in Kenya and Chile, respectively.

Studies show that, along with school infrastructure, parents' socio-economic factors and educational background affect children's learning. Children from states with lower female literacy rates are more likely to be first-generation learners than those from states with high female literacy rates. Children who are first-generation learners face immense hardships in accessing school facilities and learning (Govinda and Bandopadhyay 2010). Moreover, they are very less likely to receive the time and attention required for fruitful schooling. Dreze and Sen (2002) enlist some activities parents require, to give time and attention 'to prepare the child for school in the morning, stimulate his or her interest, help him or her with homework, and establish a rapport with the teachers'. Thus, these children are vulnerable to the risk of silent exclusion from the school system (Govinda and Bandopadhyay 2010).

There exist significant differences in the quality of life by social groups in India. Scheduled Castes (SC) and Scheduled Tribes (ST) are the historically marginalized social groups who persistently suffer from socio-economic oppression (Lastrapes and Rajaram 2016). The exclusion of socially deprived groups in higher levels of learning is reinforced by differences in income, parental education and employment status of families (Deb 2018). According to Desai and Kulkarni (2008), even primary education has the potential to significantly augment the earning prospects for children belonging to the SC and ST communities. This is because primary education gives them the eligibility for lower-level government jobs than depending on scarcely available manual labour jobs in the private sector.

Differences of levels of economic development play a critical role in influencing educational outcomes. States with higher levels of economic development are more likely to have a higher capacity to invest in education compared to states with lower levels of economic development. Due to the prevalence of the Zamindari system during the colonial rule in the Eastern states

of Bihar, West Bengal and Odisha, their economies suffered significant setbacks, the repercussions of which are felt till today (Jha, *et. al.* 2019). Jha, *et. al.* (2019) observe that states with historical underinvestment in social sectors have, with a high share of child population, lower economic capacities and low real per child expenditure on child development and *vice versa*.

To sum up, previous studies point out wide disparities in learning across Indian states. We examine whether such inter-state disparities have changed over time and whether they persist even today. We analyse the variations in learning outcomes and across Indian states over time. We aim to understand how these disparities may be explained due to differences in school infrastructure and socio-economic background at the state level. Lastly, we examine the relative importance of the state-level factors in determining the variations in learning outcomes.

This paper is organized as follows. Section II illustrates the data and methodology. Section III presents the empirical findings. Finally, Section IV concludes.

II Data and Methodology

Data

We construct a state-level dataset that combines information on child learning, school infrastructure, social and economic factors for Indian states. The sources of data are Annual Status of Education Survey (ASER), District Information for System of Education (DISE), Census, Report on Employment Unemployment Surveys (EUS) and Handbook of Statistics on Indian States.

ASER is a household-based survey in rural India that provides information on basic reading and mathematics levels of children aged 5 to 16. It collects information on child, household and village characteristics. It also collects information on school characteristics by visiting a government school in each sampled village. ASER employs a two-stage sample design. In the first stage, it selects 30 villages from each rural district from the Census directory using Probability Proportion to Size (PPS). In the second stage, it selects 20 households randomly from each village.

ASER gives estimates at the district, state and national levels. While aggregating estimates from district to state and national levels, households must be assigned weights. The weight variable it uses is a household multiplier that denotes the number of households each sampled household represents in the population. Due to its sampling strategy of PPS in the first stage and Simple Random Sampling in the second stage, all households get an equal chance of being selected at the district level. This means weights assigned to households within a district are the same. Thus, weighted estimates are equivalent to unweighted estimates at the district level. Nonetheless, weights must be included to obtain

estimates at the state and national levels as states differ in the number of districts and districts vary by population. (Annual Status of Education Report (Rural) 2018). We use ASER household datasets for the years 2009, 2014 and 2018 for the variables learning outcomes and enrolment in government schools.

DISE is an administrative dataset which is a census of all recognized schools in India, conducted annually by the Ministry of Education. It contains information on school infrastructure, enrolment, teachers, funding and other characteristics of schools. We use data aggregated at the state level from 2008, 2013 and 2016/2017 for the variables PTR, kitchen shed, playground and library.

Outcome Variables

The ASER datasets provide information on learning for rural children in the age-group 5 to 16 years. The learning levels are reported based on tests of basic literacy and numeracy[3]. The highest levels of learning tested by ASER align with Std. II on reading (i.e., whether the child is able to read a short story) and Std. IV on mathematics (i.e., whether the child is able to solve a division problem) (ASER, 2018). The same tests are conducted for all children (i.e., age-group 5 to 16). According to NCERT (2017), the expected age to read a short story is 7-8 years and to solve a division problem is 9-10 years. Therefore, we also estimate the learning outcomes for a smaller sample of children i.e., age 10 to 16 as the second specification of the model. This smaller sample consists of older children who are expected to be proficient in the learning tests.

To understand the overall learning in the state, we consider the proportion of children attaining the highest levels of learning considered in the survey. As elaborated in the previous paragraph, these levels indicate foundational reading and mathematical skills that a child is expected to acquire by the end of its primary schooling. We consider the sampling weights, while estimating the proportion of children attaining the highest levels of learning at the state level.

Explanatory Variables

To understand the factors that influence learning outcomes, we consider school-level, social and economic factors. School-level factors comprise of enrolment in government schools, PTR, kitchen shed, playground and library. Kitchen shed in school is a proxy variable for midday meals being served in schools. Social factors include female literacy rate, female labour force participation rate, proportion of SC population, proportion of ST population. The Economic factor consists of Net State Domestic Product (NSDP) per capita. Since the data on these state-level background characteristics is not always available for the exact same years as the ASER surveys, we consider the years that are closest to the ASER surveys. At the same time, the difference in the reference years is mostly one year, except for one occasion where it is two years. All the reference years, along with the definitions and sources of variables, are given in Table 1.

Table 1: Description and Source of Variables

Variable	Definition	Reference Years	Source
Learning Indicators			
Reading achievement	Proportion of children of age 5 to 16 able to read a short story (Read Level 5)	2009, 2014, 2018	ASER
Mathematics achievement	Proportion of children of age 5 to 16 able to solve a division problem (Math Level 5)	2009, 2014, 2018	ASER
School-level factors			
Enrolment in government schools	Percentage children enrolled in government schools	2009, 2014, 2018	ASER
PTR	Pupil-teacher ratio in schools	2008, 2013, 2017	DISE
Kitchen Shed	Percentage of schools with kitchen shed	2008, 2013, 2016	DISE
Playground	Percentage of schools with playground	2008, 2013, 2016	DISE
Library	Percentage of schools with library	2008, 2013, 2016	DISE
Social factors			
Female literacy rate	Share of female population aged 7 and above able to read and write with understanding in any language. Interpolated/extrapolated for the required years.	2009, 2014, 2018	Census of India, 2001 and 2011
Female labour force participation rate	Number of females aged 15 and above working or seeking work (per 1000) converted into percentage	2009-10, 2013-14, 2015-16	EUS
SC	Proportion of Scheduled Caste (SC) population interpolated/extrapolated for the required years.	2009, 2014, 2018	Census of India, 2001 and 2011
ST	Proportion of Scheduled Tribes (ST) population interpolated/extrapolated for the required years.	2009, 2014, 2018	Census of India, 2001 and 2011
Economic factors			
NSDP per capita	Net State Domestic Product per capita	2008, 2013, 2017	Handbook of Statistics on Indian States, 2019

Methods

Exploratory Analysis

We aim to explore the correlates of learning outcomes across Indian states graphically. To pursue the graphical analysis, we use simple scatter plots for the initial year, 2009. Then, we analyse the correlation between learning outcomes and some school, social and economic characteristics of Indian states. The school-level characteristics consist of enrolment in government school and PTR. The social characteristics include female literacy rate, female labour force participation rate, proportion of SC population and proportion of ST population. The economic characteristics include NSDP per capita.

Fixed Effects Regression

The data of 2009, 2014 and 2018[4] is arranged in a panel data structure. We conduct regression analysis to find out how the state-level factors are related to learning outcomes and how important these factors are in predicting children's performance in learning outcomes.

The outcome variables are in terms of proportions. As a result, it is inappropriate to use in the linear regression model, since it may give absurd predictions for extreme values of the regressors (Baum 2008). However, it is possible to use the linear regression analysis if we transform the outcome variables using logit transformation. A logit transformation is the log of the odds ratio (i.e., y/100-y). Using the log-odds ratio as the dependent variable, the fixed effects regression is given as follows:

$$Y_{it} = \theta_0 + \boldsymbol{\theta_1 X_{it}} + \delta_i + \gamma_t + \varepsilon_{it} \qquad \qquad …(1)$$

Where *i* are the states varying from 1 to 27, t refers to the years 2009, 2014, 2018. Y_{it} is the logit transformation of learning outcome indicators for state *i* in year t. We consider Mathematics and Reading indicators for two different age groups, thus giving us a total of four dependent variables. The above model is estimated separately for these variables. $\boldsymbol{X_{it}}$ is the vector of explanatory variables that are given in the previous section. The state and time-fixed effects are indicated by δ_i and γ_t, respectively.

Absolute and Conditional Convergence

In the last part, we want to understand whether the regional differences among the Indian states decrease over time. For this purpose, we consider the $\boldsymbol{\sigma} -$ and $\boldsymbol{\beta} -$ convergence methods. Under the $\boldsymbol{\sigma}$- convergence, we estimate the standard deviation for both the learning indicators for each year; 2009, 2014 and 2018. If the variation declines over time, then we say that there is $\boldsymbol{\sigma}$- convergence among the states.

The $\boldsymbol{\beta}$- convergence method may be used to test both absolute and conditional convergence. This method is based on a regression model for the yearly growth[5] in the learning indicators, given as follows:

$$GE_{it} = \beta_0 + \beta_1 lnE_{it-} + \delta_i + \gamma_t + \varepsilon_{it} \qquad \qquad …(2)$$

In equation (2), GE_{it}, the growth rate in the learning outcome is regressed on E_{it-1} the initial level of learning. A negative coefficient indicates that the states with lower initial learning indicators grow at a faster rate. Thus, it implies an absolute convergence. The above model is again estimated using the fixed effects regression.

To test   conditional convergence, we include X_{it-1}, the other background characteristics of the states at the initial period. This specification controls for the differences in initial conditions apart from the level of learning and thus, implies conditional convergence.

$$GE_{it} = \beta_0 + \beta_1 lnE_{it-1} + \boldsymbol{\theta X_{it-1}} + \delta_i + \gamma_t + \varepsilon_{it} \qquad \qquad \text{...(3)}$$

Table 2 describes the mathematical symbols in equations (2) and (3) explaining convergence in learning outcomes.

Table 2: Description of Mathematical Symbols Explaining Convergence in Learning Outcomes

Dependent Variable	Description
GE_{it}	Yearly growth rate of learning outcomes between time-period t and t-1.
Independent Variable	Description
β_0	Intercept
E_{it-1}	Initial level of learning outcomes
X_{it-1}	Initial level of background characteristics
δ_i	State fixed effects
γ_t	Time fixed effects
ε_{it}	Error term

III Empirical Findings

Literature has reported wide variations in learning across Indian states. We examine whether such variations persist even today. We first analyse variations in the learning outcomes across Indian states for 2009, 2014 and 2018. Next, we aim to understand how these state variations may be explained due to differences in school infrastructure and socio-economic background at the state level. Using simple scatter plots for the initial year, 2009, we analyse the correlations between the learning outcomes and these state-level variables. Lastly, using the panel regression for all three years, we examine the determinants of learning achievement by states.

Regional Variations in Learning Outcomes Over Time

We examine changes in the learning outcomes across states in the past decade. Figure 1 and 2 depict the proportion of children with the highest reading and mathematics levels for 2009, 2014 and 2018. Haryana, Himachal Pradesh, Kerala, Punjab are consistently the best-performing states on learning outcomes in all the years. The main factors reported by studies are state initiatives to improve investment in education and greater opportunities for weaker sections (Sood 2001, Deshpande 2000 and Asadullah and Yalonetzky 2012). Manipur, Mizoram,

Sikkim and Uttaranchal also perform well in learning outcomes. The states of Arunachal Pradesh, Assam, Jammu and Kashmir, Jharkhand, Meghalaya, Tripura, Uttar Pradesh have poor learning outcomes. Our findings are in agreement with (Jha and Parvati 2014, Singh and Sarkar 2015, Tilak 2018).

Figure 1: Proportion of Children with Read Level 5 by States (2009, 2014 and 2018)
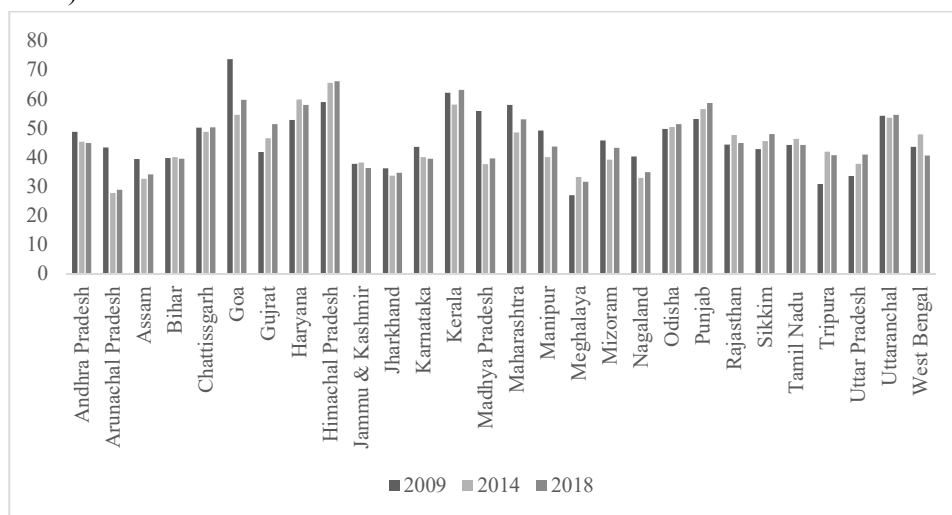
Source: Estimation based on ASER 2009, 2014, 2018.

Figure 2: Proportion of Children with Math Level 5 by States (2009, 2014 and 2018)
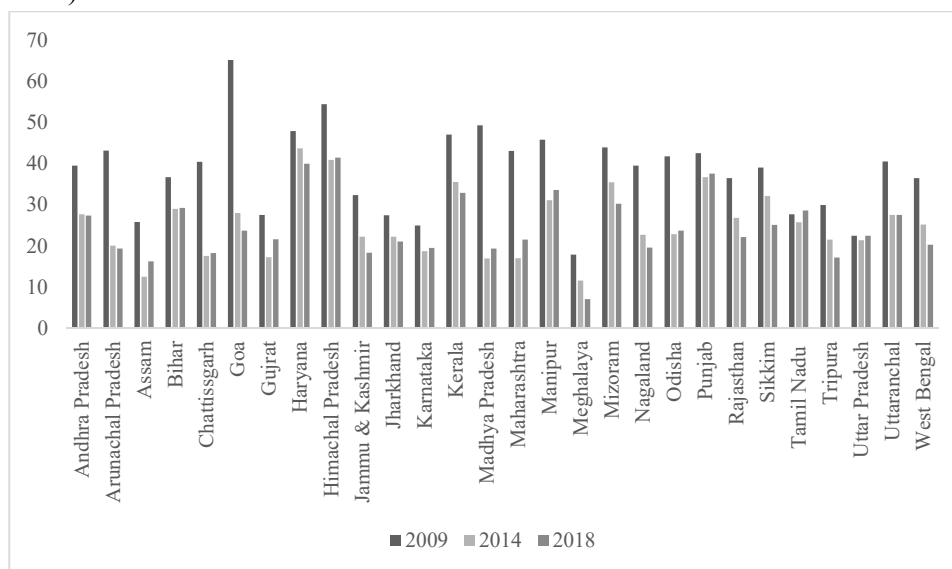
Source: Estimation based on ASER 2009, 2014, 2018.

Goa and Maharashtra perform remarkably well in reading achievement in all the years. Madhya Pradesh has high reading achievement in 2009 but it deteriorates in subsequent years. These states also exhibit good performance in the Mathematics test with 65.27 per cent, 49.36 per cent and 43.15 per cent of children achieving level 5 in Goa, Madhya Pradesh and Maharashtra in 2009. However, this performance considerably deteriorates over time. This decline in Mathematics achievements is visible in almost all the Indian states.

Surprisingly, some of the less-developed states, such as Bihar in mathematics and Odisha in reading, perform well on learning achievement. Despite being a poor state, Odisha has prioritized spending on child development and devised schemes on children's pre-education and nutrition, enabling its transition to better status in child development, whereas states such as Gujarat lost the early advantage it had (Jha, *et. al.* 2019).

Regional Disparity in Learning and State Characteristics

We examine the inter-state variations in learning outcomes by taking into account their background characteristics. These background characteristics comprise of some school-level, social and economic factors of Indian states.

(i) School-Level Factors

Filmer, *et. al.* (2020) point out that differences in quality of school and school system play a substantial role in students' learning. Studies show that in many cases, learning differs across government and private schools (Muralidharan and Kremer 2009, Goyal 2009, French and Kingdon 2010, Singhal and Das 2019). Moreover, the quality of education is reflected in other supply-side factors, such as the availability of teachers. Following the literature (Dreze and Sen 2002, Chechi, *et. al.* 2016) we consider the pupil-teacher ratio as a proxy for the quality of education[6].

a) Enrolment in Government Schools

In most of the well-performing states[7], such as Himachal Pradesh, Punjab and Madhya Pradesh, a higher percentage of students are enrolled in government schools[8] as compared to the other states. For instance, Himachal Pradesh has a high percentage of children (60.19 per cent) enrolled in government schools and a high proportion of children with the given Reading (58.96 per cent) and Mathematics (54.54 per cent) levels (Figure 3).

At the same time, the data does not bring out any definite correlation between enrolment in government schools and learning outcomes (Figure 3). So, higher percentage of students enrolled in government schools is associated with both better (Himachal Pradesh, Punjab, Madhya Pradesh) and poor (Bihar, West

Bengal, Odisha, Assam, Tripura) learning outcomes. These findings support the observations of earlier studies that government schools exhibit substantial heterogeneity in terms of physical infrastructure and teachers across states (Agarwal 2014). As a result, it is difficult to find any clear relation between government schools and learning.

Figure 3: Learning Outcomes and Enrolment in Government Schools and PTR (Across Indian States[9], 2009)
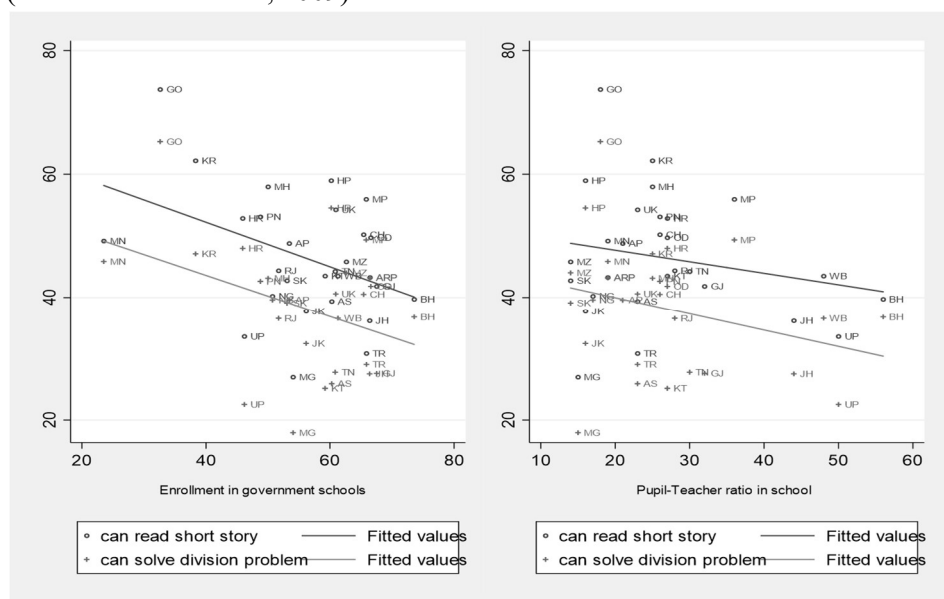
Source : Estimation based on DISE 2008, ASER 2009.

b) Pupil-Teacher Ratio

We find that high PTR in schools is associated with a lower proportion of students achieving basic numeracy and literacy (Figure 3)[10]. For instance, Jharkhand, Bihar, Uttar Pradesh, West Bengal have high PTR and low learning outcomes. The PTR for West Bengal in 2014 and 2018 is lower compared to 2009. Meghalaya is an outlier with low learning achievement in reading and mathematics in spite of having low PTR. High PTR indicates slow growth of teacher supply resulting in overcrowded classrooms (Jha, et. al. 2008). For instance, the percentage of single-teacher primary schools in 2016 is 45.84 per cent in Arunachal Pradesh, 36.69 per cent in Goa and 28.04 per cent in Jharkhand (DISE, 2016). These states have low learning achievement[11].

(ii) Social Factors

Inequalities in educational outcomes persist along lines of gender and caste.
(Dreze and Sen 2002, Asadullah and Yalonetzy 2012). Women agency is closely
related to female literacy rates and female labour force participation rate (Murthi,
Guio and Dreze 1995). Deshpande and Ramachandran (2016) find large caste gaps
in learning outcomes between the social groups.

We consider female literacy rate, female labour force participation rate,
proportion of SC population and proportion of ST population to indicate the social
characteristics of the states.

a) Female Literacy Rate

There appears to be a positive correlation between learning outcomes and female
literacy rate. For instance, Himachal Pradesh, Kerala, Goa, Maharashtra,
Uttarakhand have high learning achievement and high female literacy rates.
Jharkhand, Jammu and Kashmir, Uttar Pradesh, Bihar, Rajasthan, Arunachal
Pradesh have low learning levels and low female literacy rates. (Figure 4).

Figure 4: Learning Outcomes and Female Literacy Rate and Female Labour Force
Participation Rate
(Across Indian States, 2009)
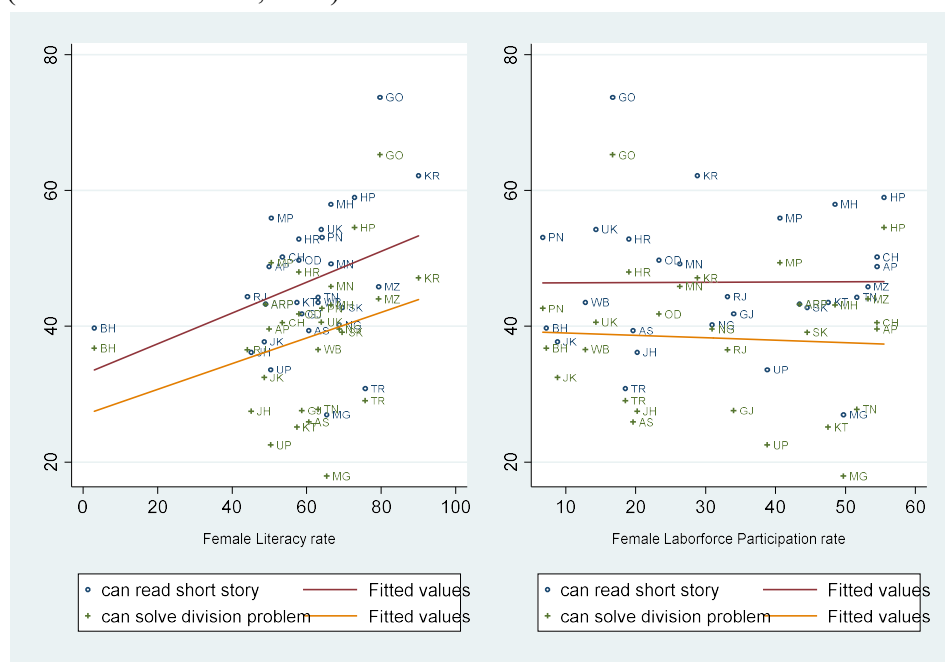
Source: Estimation based on Census 2001 and 2011, EUS, 2009-10

b) Female Labour Force Participation Rate

Female labour force participation enhances women's agency in the households which enables women to focus on and prioritize child care (Sen 1999). Thus, women are able to devote resources and time to their children's education. Female labour force participation rates are positively related to learning outcomes. Jharkhand, Jammu & Kashmir, Bihar, West Bengal, Odisha, Tripura, Assam, Uttar Pradesh have low learning levels and low female labour force participation rates. Maharashtra, Himachal Pradesh, Chhattisgarh, Mizoram, Andhra Pradesh have high learning levels and low female labour force participation rates (Figure 4).

c) Proportion of SC and ST Population

Figure 5 shows some association between the proportion of disadvantaged population and learning outcomes. For instance, states of Assam, Uttar Pradesh, Jammu and Kashmir, West Bengal, Gujarat have a large proportion of SC population along with low learning outcomes. North-eastern states such as Nagaland, Tripura, Arunachal Pradesh, Meghalaya along with West Bengal have a high proportion of ST population and low learning outcomes. Whereas Goa, Kerala, and Maharashtra have low proportion of SC and ST population and perform well on the learning outcomes (Figure 5). However, while considering all the states, the findings do not show a strong association between the proportion of SC or ST population and learning.

Figure 5: Learning Outcomes and Proportion of SC and ST Population (Across Indian States, 2009)
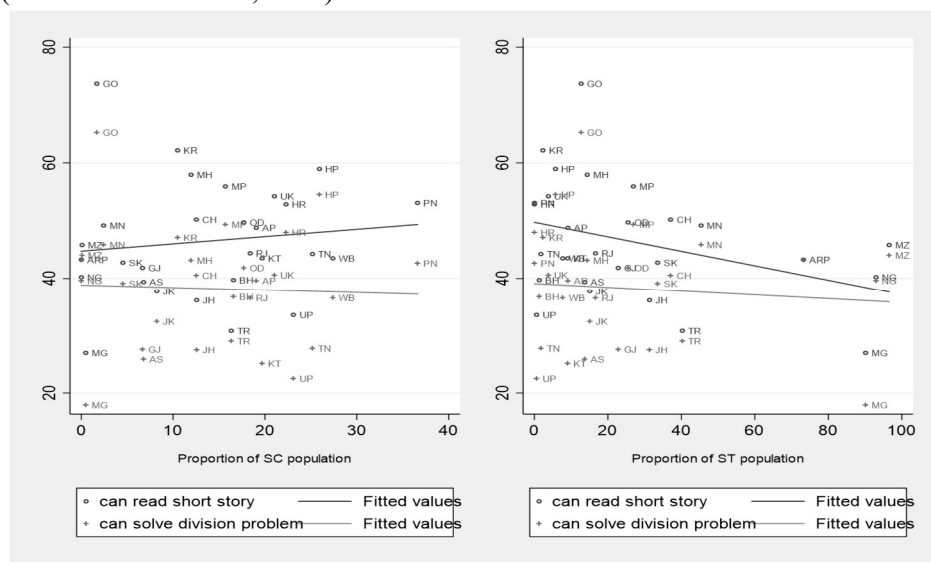
Source: Estimation based on ASER 2009, Census of India for 2001 and 2011.

One prominent exception to the above-mentioned overall pattern is the state of Himachal Pradesh. Although, Himachal Pradesh has a high proportion of SC and ST population, it has high learning levels. Dreze and Sen (2002) note that caste differences in Himachal Pradesh are less hierarchical and divisive in comparison to other regions. It has relatively egalitarian social norms as well as a strong tradition of cooperative action (Dreze and Sen 2013).

(iii) Economic Factors

We consider NSDP per capita to understand the economic capacity of states.

NSDP Per Capita

States with higher economic capacity are likely to invest more in educational outcomes than states with lower economic capacity. There exists a positive correlation between learning outcomes and NSDP per capita. For instance, Bihar, Uttar Pradesh, Jharkhand, West Bengal, Assam, Tripura, Meghalaya, Jammu and Kashmir have low learning achievement and low NSDP per capita. On the contrary, Goa, Himachal Pradesh, Uttarakhand, Punjab, Maharashtra, Kerala depict high learning achievement and high NSDP per capita (Figure 6).

Figure 6: Learning Outcomes and NSDP Per Capita
(Across Indian States, 2009)
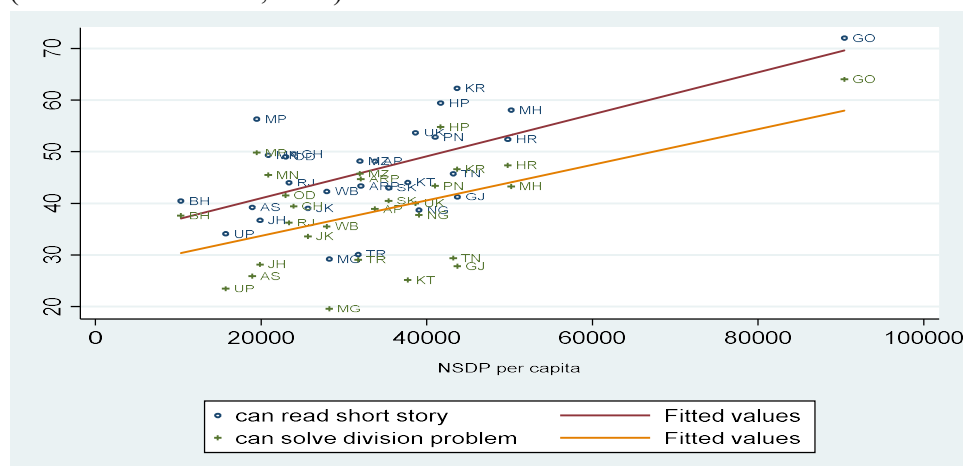
Source: Estimation based on ASER 2009, Handbook of Statistics on Indian States, 2019.

Regression Analysis of Learning Outcomes with State-Level Factors

The simple correlation analysis above shows that school infrastructure and socio-economic factors indeed have an association with learning outcomes. Now, we want to examine the relative importance of the variables comprising school

infrastructure and socio-economic factors in predicting learning outcomes. Using the data from 2009, 2014 and 2018, we construct a panel dataset to conduct a fixed effects regression analysis to analyse which variables matter more in determining learning outcomes. We regress the learning outcomes of children on school, social and economic factors. We report two specifications of the model. The first includes all variables covering the entire sample of children in age-group 5 to 16. The second estimates a smaller sample of children in age-group 10 to 16. Table 3 reports the results.

Table 3: Determinants of Learning Achievements – Panel Regression

	Age-Group 5 to 16		Age-Group 10 to 16	
	Reading achievement (1)	Mathematics achievement (2)	Reading achievement (3)	Mathematics achievement (4)
School-level factors				
Enrolment in government schools	-0.0002 (0.005)	-0.0047 (0.006)	0.0031 (0.007)	-0.0012 (0.009)
Pupil Teacher ratio	-0.0100* (0.005)	-0.0086 (0.006)	-0.0101 (0.007)	-0.0023 (0.008)
Kitchen shed	0.0048** (0.002)	-0.0002 (0.003)	0.0049 (0.003)	-0.0012 (0.004)
Playground	-0.0014 (0.005)	0.0039 (0.005)	-0.0026 (0.008)	0.0040 (0.009)
Library	-0.0020 (0.002)	-0.0017 (0.002)	-0.0045 (0.004)	-0.0039 (0.003)
Social factors				
Female literacy rate	0.0118 (0.012)	0.0304* (0.018)	0.0066 (0.021)	0.0384* (0.022)
Female labour force participation	-0.0014 (0.012)	-0.0018 (0.004)	0.0006 (0.004)	-0.0001 (0.005)
Proportion of SC population	-0.0639 (0.072)	-0.0321 (0.073)	-0.0387 (0.125)	0.0686 (0.109)
Proportion of ST population	-0.0436* (0.022)	-0.0707*** (0.021)	-0.0523 (0.033)	-0.0909*** (0.031)
Economic factors				
Log NSDP per capita	0.4401 (0.268)	0.8905*** (0.276)	0.6558 (0.401)	1.1491*** (0.422)
2014	-0.5934** (0.282)	-1.5788*** (0.345)	-0.6209 (0.433)	-1.7778*** (0.498)
2018	-0.6987** (0.343)	-1.8909*** (0.495)	-0.7363 (0.542)	-2.2025*** (0.615)
F-statistic	2.53	22.02	1.61	18.97
Prob>F	0.0232	0.0000	0.1489	0.0000
R-squared (within)	0.2844	0.8134	0.2099	0.7696
R-squared (between)	0.3736	0.1737	0.2707	0.0683
R-squared (overall)	0.3385	0.1510	0.2382	0.0698
No. of observations	81	81	81	81
Constant	-3.1071 (2.986)	-9.6892*** (3.309)	-4.3133 (4.766)	-12.2621** (5.027)

Note: Standard errors are given in parenthesis. Statistical significance. ***p<0.01, **p<0.05, *p<0.1.

Source: Estimation based on three-year longitudinal data for Indian states.

Table 3 shows that out of all the school-level factors considered in the regression, PTR has a statistically significant negative impact on reading achievement of children of age-group 5 to 16. Several studies have pointed out the negative effect of high PTR on learning achievement (Urquiola 2006, Urquiola and Verhoogen 2009, Mulera, *et. al.* 2017). A Kitchen shed in school has a positive significant impact on reading achievement of children of age-group 5 to 16 but no impact on mathematics achievement. Our finding is in consonance with Adrogue and Orlicki (2013) that school meal programs led to improvement in language scores and not maths scores in Argentina. Enrolment in government schools, playground and library is insignificant in determining the learning achievement of children.

Female literacy rate has a positive significant impact on the mathematics achievement of children for both the specifications. Female labour force participation rate and proportion of SC population lack significance in predicting child learning. Proportion of ST population is negatively significant in determining reading achievement for children of age-group 5 to 16 and mathematics achievement for both the specifications. Deb (2018) finds that caste status has an adverse impact on education and learning achievement of some states and serves as a source of disadvantage in enrolment, attendance and completion rates of children.

NSDP per capita has a positive significant effect on mathematics achievement for both specifications. For instance, a one percent increase in NSDP per capita increases the odds of better mathematics outcomes by 0.89 percent. Higher NSDP per capita tends to be associated with low poverty levels and thus, reduced risk of drop-outs due to poverty (Tilak 2018).

The negative time trend in mathematics tests for both specifications indicates that learning outcomes in mathematics are declining over time. Shah & Steinberg (2019) point out several reasons for this phenomenon of increasing enrolment and declining learning outcomes after RTE came into effect (i.e., 2009). Firstly, RTE facilitated the influx of first-generation learners into the school system thereby causing negative peer effects in the school. Secondly, lack of exams and automatic promotion of students in primary school has deteriorated the learning levels of children.

Absolute and Conditional Convergence

In order to understand whether regional variations across Indian states decrease over time, we employ the $\sigma -$ and $\beta -$ convergence methods. Figure 7 shows the standard deviations of learning indicators i.e., reading and mathematics achievement of Indian states for each year considered in our analysis - 2009, 2014 and 2018. The dispersion in mathematics achievement of states gets reduced during the examined period, therefore we can say σ convergence occurs in mathematics achievement among the states. However, we do not find similar signs of σ convergence in reading achievement of states, particularly for the age-group

10-16 years. This result indicates that the growth rate of proportion of children achieving proficiency in the lagged-behind states for reading achievement is not sufficient to reduce the dispersion over time.

Figure 7: Standard Deviations for Learning Indicators (σ-convergence)
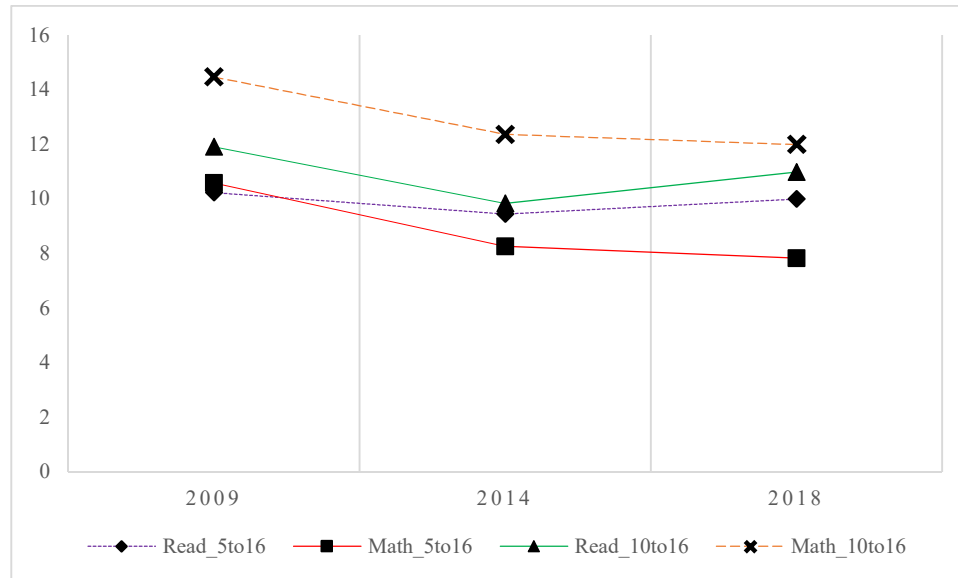
Source: Estimation based on ASER 2009, 2014, and 2018.

To evaluate absolute and conditional convergence, we use the regression model in equations (2) and (3) and estimate using the fixed effects method again. Table 4 provides the absolute and conditional convergence results.

Model 1 of Table 4 shows the results for absolute convergence. The negative coefficient of the lagged value of the initial level of reading and mathematics achievement exhibit evidence in favour of absolute convergence in learning indicators among states. States with low initial learning performance are able to catch up with better-off states in the long run. Model 2 of Table 4 shows the results for conditional convergence after controlling for the above-mentioned state characteristics. We find support for the existence of conditional convergence. School-level factors such as enrolment in government schools, library and social factors such as female labour force participation rate, proportion of ST population impact learning indicators of states. Thus, regional variations among states in learning indicators tend to decline over time.

Table 4: Absolute and Conditional Convergence

	Age group 5 to 16		Age group 10 to 16	
	Reading achievement	Mathematics achievement	Reading achievement	Mathematics achievement
Model 1:				
Beta-coefficient	-0.2430***	-0.2430***	-0.2386***	-0.2517***
	(0.013)	(0.00)	(0.012)	(0.00)
R-squared (within)	0.9187	0.8622	0.9178	0.8414
R-squared (between)	0.0006	0.0172	0.0104	0.0324
R-squared (overall)	0.1062	0.1896	0.1757	0.1480
No. of observations	54	54	54	54
Model 2:				
Beta-coefficient	-0.2300***	-0.2636***	-0.2254***	-0.2666***
	(0.011)	(0.021)	(0.009)	(0.022)
School-level factors				
Enrolment in government schools	0.0003	0.0036**	0.0000	0.0027
	(0.0004)	(0.001)	(0.0004)	(0.001)
Pupil Teacher ratio	0.0009	0.0008	0.0005	0.0005
	(0.001)	(0.001)	(0.0007)	(0.001)
Kitchen shed in school	0.0000	-0.0001	0.0000	-0.0001
	(0.0001)	(0.0003)	(0.0001)	(0.0002)
Playground	0.0001	0.0003	0.0002	0.0002
	(0.0001)	(0.0006)	(0.0001)	(0.0005)
Library	0.0001*	0.0005*	0.0001*	0.0005**
	(0.0001)	(0.0002)	(0.0001)	(0.0002)
Social factors				
Female literacy rate	-0.0004	0.0008	-0.0007	-0.0024
	(0.001)	(0.002)	(0.001)	(0.002)
Female labour force participation	-0.0003	-0.0011	-0.0004*	-0.0012
	(0.0004)	(0.001)	(0.0002)	(0.007)
Proportion of SC population	-0.0030	-0.0152	-0.0026	0.0143
	(0.006)	(0.011)	(0.004)	(0.010)
Proportion of ST population	-0.0003	-0.0077**	0.0002	-0.0082***
	(0.001)	(0.003)	(0.001)	(0.003)
Economic factors				
Log NSDP per capita	-0.0048	0.0246	-0.0030	0.0388
	(0.018)	(0.2)	(0.008)	(0.023)
R-squared (within)	0.9501	0.9436	0.9597	0.9411
R-squared (between)	0.0253	0.2945	0.0001	0.2006
R-squared (overall)	0.0286	0.1418	0.1057	0.1042
No. of observations	54	54	54	54

Notes: (1) Standard errors are given in parenthesis. (2) Statistical significance. ***p<0.01, **p<0.05, *p<0.1. (3) Time fixed effects are included in both the models.

Source: Estimation based on three-year longitudinal data for Indian states.

IV Conclusion

This paper studies the disparities in Indian states in learning achievement and its association with some state-specific factors. In order to uncover the explanation behind regional disparities in learning outcomes, we explore the association of

learning with school infrastructure and socioeconomic variables across the Indian states. Among the school-level factors, states with very high PTR have low learning achievement. Among the social characteristics, female literacy rates and female labour force participation are positively associated with learning outcomes. Looking at the economic factors we find that states characterized by high NSDP per capita have a positive association with learning outcomes.

The regression analysis shows that among the social factors considered, proportion of ST population is negatively significant in determining reading achievement for children of age-group 5 to 16 and mathematics achievement for both the specifications. Female literacy rate has positive significant impact on mathematics achievement. The economic factors such as NSDP per capita have a positive significant effect on mathematics achievement. Among school-level factors, PTR has a negative effect on reading achievement and kitchen shed has a positive impact on reading achievement for children of age-group 5 to 16. Although the disparities exist, the convergence analysis shows some evidence of a reduction in the same. We find σ-convergence in mathematics achievement for Indian states but not in reading achievement. Also, the absolute and conditional β-convergence in the learning indicators among the states holds true. Thus, regional variations among states in learning indicators tend to decline over time.

The regression analysis re-establishes the adverse role of disadvantages faced by the marginalised sections of the population on the basis of social background. Children from socially disadvantaged groups largely attend government schools. Improving the quality of the government schooling system is imperative for improving the learning levels of children equitably. However, most school-level factors have no significant impact on learning achievements across both the specifications. Thus, for all the states taken together, the schooling system does not seem to correct the inequalities in learning based on socio-economic and educational backgrounds. Banerjee and Duflo (2011) rightly argue that since the school curriculum and teaching in developing countries is aligned to cater to the needs of the affluent sections of children rather than the regular ones, school inputs are unable to improve school quality and hence learning. This is also evident from the fact that female literacy and per capita income remain important determinants of the learning outcomes.

A decentralized approach towards education has the potential to yield better educational outcomes. The experience of Madhya Pradesh and Rajasthan highlights the importance of decentralized efforts in education. An in-depth analysis of such success stories may throw light on possible measures that can be taken for improving learning across all Indian states.

Endnotes

1. Education Guarantee Scheme is a community-centred, rights-based initiative to establish primary schooling facility within 90 days within a distance of 1 km owing to demand from at least 25 learners in tribal areas and 40 learners in non-tribal areas (Gopalakrishnan and Sharma 1998).

2. Shiksha Karmi Project aimed at improving the access to basic education by recruiting local youths as teachers in rural remote areas where the primary schools are grappling with teacher absenteeism, dysfunctional schools, community despair (Ramachandran 2001) low enrolment and high dropout rates, especially of girls (Rajagopal 2015). It laid emphasis on women teachers, i.e., Mahila Shiksha Karmis and enabled women empowerment by promoting Mahila Prashikshan Kendras, Mahila Sahyoginis and Women's groups as well as their representation and active role in the village education committees (Tilak 2018).

3. The learning tests assess learning based on five Reading and five Mathematics levels. The five reading levels are (I) cannot read letters, (II) can read letters but not words, (III) can read words but not paragraph, (IV) can read paragraph but not short story, (V) can read short story. Similarly, the Mathematics levels are also divided into five categories as, (I) cannot recognize numbers 1 to 9, (II) can recognize numbers 1 to 9 but not 10 to 99, (III) can recognize numbers 10 to 99 but cannot solve two-digit subtraction problem with borrowing, (IV) can solve two-digit subtraction problem with borrowing but cannot solve division problem of three-digit number divided by one-digit number, (V) can solve the division problem.

4. We could not take all the years between 2009, 2014 and 2018 and are unable to make it a continuous panel as data on the outcome and all the explanatory variables are not available for all the year in-between. For instance, ASER data is not available for 2015 and 2017. Similarly, data on some other explanatory variables are not available for some other years.

5. As the number of years between the two time-periods, 2009-2014 and 2014-2018 is not the same; while calculating the growth rate of the first time period, we divide by four and for the second, we divide by five.

6. Additional school characteristics are included in the regression analysis as mentioned in the previous section.

7. Goa and Kerala are the exceptions as they exhibit a relatively higher percentage enrolment (56.7 per cent and 42 per cent, respectively) in the private schools (ASER, 2009).

8. Among non-government schools, private schools have the highest enrolment. 18.80 per cent of enrolment was in private schools and only 0.84 per cent enrolment was in remaining non-governmental schools (ASER, 2009). These non-governmental schools comprise of Madrasa, EGS or 'other' non-formal schools in the ASER data.

9. AP=Andhra Pradesh ARP=Arunachal Pradesh AS=Assam BH=Bihar CH=Chhattisgarh GO=Goa GJ=Gujrat HR=Haryana HP=Himachal Pradesh JK=Jammu & Kashmir JH=Jharkhand KT=Karnataka KR=Kerala MP=Madhya Pradesh MH=Maharashtra MN=Manipur MG=Meghalaya MZ=Mizoram NG=Nagaland OD=Odisha PN=Punjab RJ=Rajasthan SK=Sikkim TN=Tamil Nadu TR=Tripura UP=Uttar Pradesh UK=Uttarakhand WB=West Bengal

10. As a result, to reduce disparity in student learning across socio-economic backgrounds, the Right to Education Act (RTE), 2009 recommends a PTR of 30: 1.

11. Although Goa has done well in mathematics in 2009, its performance has reduced drastically in the subsequent years.

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Special Economic Zones in India: Location and Land Utilisation

Surya Tewari

The study examines the issue of land utilisation in Special Economic Zones (SEZs) in India. As per the government, over half of the land is lying vacant in SEZs. The related issues of low proportion of functional SEZs, de-notification of notified SEZs, and notification of few new SEZs co-exist. The government has also proposed to bring a new SEZ law. The effectiveness of new law with respect to land utilisation will be known when it will come into force. The need is to understand the current level of utilisation and that too in spatial terms. In the near absence of state wise analysis, the study investigates levels of land utilisation in SEZs at the state level. The analysis is also carried out with respect to sectors and promoters (private and government). The factors in terms of accessibility and land quality have also been assessed.

In general, results indicate similar levels of utilisation across different categories of analysis. At an all India level, the utilisation of SEZ land is about 37 per cent. Within processing area around 45 per cent land is lying vacant. SEZs are not found to be affected by locational disadvantage in terms of accessibility and land quality. The paper raises the question relating to the need for new SEZs when established ones show low levels of utilisation. The setting up of new SEZ units in already existing SEZs and linking incentives and conditions to quantum of exports, investment achieved, and location of SEZs in unproductive lands are the best possible strategy to ensure land utilisation.

Keywords: Land Utilisation, Processing Area, Accessibility, Land Quality

I Introduction

Special Economic Zones (SEZs) were launched with the approval of the Parliament of India in June 2005 - with much optimism - for generating growth and employment. There was also an idea of capping the number of SEZ to curb large tracts of agricultural land from being converted to non-agricultural use. This led to the rush for setting up of SEZs in the country. In 2006, for example, 235 SEZs were formally approved (*Reddif,* February 21, 2007). The rapid pace of demand for SEZ created fear of acquisition of fertile cultivable land thereby affecting agricultural production. As a consequence, there was huge backlash from activists and political parties resulting in conflicts such as that in places like Nandigram in the state of West Bengal. Official data shows that most of the

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currently functional SEZs were notified between 2006 and 2009. Moreover, many of them are not yet functional. Protests are also taking place for the return of unused land (*The Hindu*, October 1, 2018; *The Times of India*, February 14, 2021).

In fact, we have come to a time when the attraction of SEZs appears to be waning in the country. The need for bringing new SEZ law is evidence of how the current law and policy failed to meet out the hopes as envisioned (*The Hindu,* February 1, 2022). De-notification of SEZs is taking place which indicates loss of interest in the efficacy of SEZ. Going by the government's account, by June 2017 some 81 SEZs had been de-notified (*The Indian Express*, July 26, 2017). Reasons highlighted for such a state include unsuitable location of SEZs, unviable rehabilitation and compensation package, imposition of Minimum Alternate Tax (MAT) and Dividend Distribution Tax (DDT), benefits outside SEZ like import duty concessions through various free trade agreements, and viability of size. A reason ignored in the preceding list of reasons is the quantum of land originally approved was more than what was required.

Available literature dealing with SEZs focus on issues like employment, export, investment, FDI, incentives, backward and forward linkages, sale to domestic tariff area, land acquisition, and compensation. See for example research works of Aggarwal 2007, Sharma 2007, Gill 2007, Sampat 2008, Sharma 2009, Rawat, Bhushan, and Surepally 2011, Pratap 2012, Aggarwal 2012, Khurud 2013, Shah 2013, Cook, Bhatta, and Dinker 2013, Mukherjee, *et. al.* 2016, Chakraborty, Gudimeda, and Kathuria 2017 and Sathe, 2017. Land as a factor of production has not been adequately explored in these publications.

It is pertinent to note that with focus on utilization of land, the efficiency of existing SEZs would increase. This in turn is critical for scaling up manufacturing growth and employment.

There are a few studies that consider SEZs as neo liberal mechanism to accumulate more capital (land) in collusion with domestic system by the process of "dispossession" or "encroachment". State is treated as "land broker," developer as "land rentier," with no role in real production but only a role in land circulation (See Levien 2011, Gopalkrishnan 2007 and Banerjee-Guha 2008 and 2017). Going by their argument the location of SEZs in and around large urban areas (Mitra 2007 and Mukhopadhyay and Pradhan 2009) may be regarded as nothing but an avenue to gain from land through speculation and concomitant wastage of competing, scarce resource. We expect such wastage to get reflected in the extent of unused land in SEZs, extent of non-functional SEZs and the number de-notifications of SEZs in the country. In this background the objectives set for this paper are:

- Analysis of level of utilisation of land in SEZs,

- Examination of factors affecting land utilisation – type of promoter, sector, size, operational status, and locational attributes in terms of accessibility/land quality, and

- Investigation of both the additional and the de-notified SEZs.

The analysis is carried out at all India level using secondary data. The paper is divided into seven sections. The following, Section II, explains the analytical framework of the study. Section III analyses land distribution and utilisation. Section IV investigates additions and de-notifications of SEZs. Section V assesses time lag between notification and operation of existing SEZs. Section VI examines the locational aspect of existing SEZs in the country. Finally, Section VII sums up the paper.

II Analytical Framework

The analysis is carried out using secondary data pertaining to SEZs as existing on January 23, 2014, and December 01, 2017. Data was extracted from the website of the Government of India (GOI 2014, GOI 2017a and GOI 2017b). Data relating to 2014 is used in Section III of the paper for analysing the level of land utilisation and its correlates. This was the only data available on land information viz. notified, utilised, and extent of vacant land in processing area of each of the notified SEZ at the time of commencement of the work. In 2014, eighteen states and two UTs had notified SEZs. From this list, the SEZs in Telangana have been separated from those in Andhra Pradesh (Telangana was formed on June 02, 2014). The SEZs considered in the paper includes SEZs notified under SEZ Act 2005 and 19 (18 in the list of 2017 on de-notification of the one in Jodhpur) EPZs/SEZs rechristened or set up respectively, before the introduction of SEZ Act 2005.

The regression technique is utilized to investigate the factors impacting land utilization in SEZs with percentage land utilized in the notified area taken as a dependent variable and predictors as developer, sector, size, operational status, accessibility, accessibility and land quality. With the exception of the last three variables, the information for others is used directly from the database of January 2014. The data of 2017 has been used to know the operational status of SEZs in 2014. All the SEZs of 2014 are located in the list of operational SEZs of 2017. 78 SEZs which were not there in the list of 2017, are considered as non-operational in 2014. For locational aspects, the base maps from the study previously done by Ramachandran and Biswas (2007) have been used. The authors have mapped and measured the accessibility of all the districts of the country simultaneously on four parameters (a) areas within 10 km from the national highway, (b) areas within 30 km from a broad-gauge railway line, (c) within 50–100 km of cities with a population of 1 million, and (d) within 30–60 km from cities with a population above three hundred thousand. To reflect land quality in accessible area, parameters of unproductive and scrub land were added. Districts that satisfy the conditions of accessibility and of accessibility in unproductive and scrub land are considered preferable for setting up the SEZs. While accessibility is important from the perspective of the promoter of SEZ, land quality parameters take note of the environmental aspect. By superimposing districts that are preferable for location of SEZ and districts in which SEZs are located, two maps have been

obtained with each showing two elements – SEZs located in preferred districts and those in unsuitable districts.

III Land Distribution and Its Utilisation

Despite substantial diversity and disparity in India across states, SEZ are established through a single Act on SEZ passed by the Parliament of India in 2005. Figure 1 records the distribution of SEZs by state across 21 states/union territories (UTs) of India.

Figure 1 reveals the following feature: 1) Majority of SEZs are located in Maharashtra, Telangana and Tamil Nadu. (2) The SEZs are mainly promoted by the private sector. In many of the states, the share of private sector is high, reaching up to 100 per cent as in Punjab, Haryana, Uttarakhand, Chhattisgarh, Jharkhand, Nagaland, and Goa. However, except Haryana (having 29 SEZs), the number of SEZs is low in all these states. (3) In three states - Kerala, Madhya Pradesh, and Odisha - the state government share is comparable with that of private SEZs. In Kerala, most of the SEZs (72 per cent) have been developed by the state government. This may be due to the fact that the state has categorically specified that it is not going to make land available to private enterprises or undertake acquisition on behalf of the private entity. The state also demands the processing area to be 70 per cent (remaining 30 per cent as non-processing) of the notified land, plus it permits implementation of all prevailing labour related Acts in the SEZs.

Figure 1: Distribution of SEZs by Developers (as on January 23, 2014)

Source: Constructed using data extracted from GOI, 2014.

Figure 2: Distribution of Notified Area in SEZs by the Type of Developer (as on January 23, 2014)
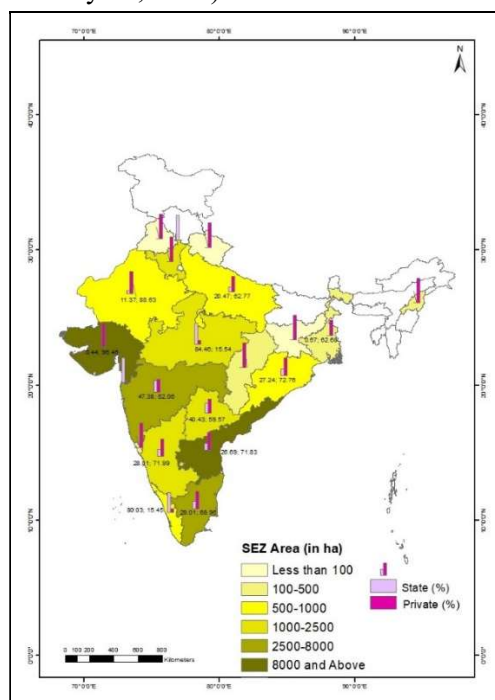
Source: Constructed using data extracted from GOI, 2014.

A study of Figure 2 brings out firstly, that the physical aggregate size of SEZs vary significantly across states- smallest aggregate being less than 100 ha to the biggest size of about 13,000 ha. The area in the biggest size bracket is in Gujarat and Andhra Pradesh. Both the states have the highest number of multiproduct SEZs in the country. Secondly, northern states have smaller SEZs in comparison to the southern states. Thirdly, in the southern states of Kerala, Karnataka, and Telangana, the size of the SEZ is comparatively smaller due to the fact that these are mainly in the IT/ITES sector. The minimum area requirement for this sector was 10 ha, a condition that was dispensed with subsequently. And, fourthly, since the share of private SEZs is generally more in each state, the area under private SEZs is also more. Privately developed SEZs account for about 76 per cent in terms of numbers and about 73 per cent in terms of area.

However, when it comes to utilisation of land (includes utilisation in processing and amenities), utilisation by privately developed SEZs is similar to state government SEZs (Table 1). Both have been able to utilise a little over 1/3 of the respective notified land. However, comparison at intra-state level reveal differences. The results of paired t test on 12 states (having both state and privately developed SEZs) show the difference to be significant (t=2.7889; p=0.018).

Table 1: Per cent Utilised Land to Notified Area (as on January 23, 2014)

State/UT	Total	State Government	Private Sector
	% Land Utilised from SEZ Area in the state/UT	% Land Utilised from SEZ Area under State Government	% Land Utilised from SEZ Area Under Private Sector
West Bengal	57.90	73.76	37.23
Gujarat	53.38	100.00	51.70
Odisha	49.45	48.09	49.96
Kerala	46.74	47.84	25.89
Tamil Nadu	40.94	58.57	31.78
Chandigarh	40.40	40.40	
Karnataka	39.27	33.18	41.65
Andhra Pradesh	37.6	41.61	34.96
Uttar Pradesh	30.25	7.11	19.18
Maharashtra	23.74	28.67	18.43
Chhattisgarh	21.76		21.76
Telangana	19.93	23.86	17.27
Punjab	18.19		18.19
Rajasthan	16.77	37.55	14.11
Madhya Pradesh	13.27	15.71	0
Haryana	3.34		3.34
Dadra and Nagar Haveli	0	0	
Jharkhand	0		0
Uttarakhand	0		0
Nagaland	0		0
Goa	0		0
Total	36.96	35.40	35.79

Note: The percentage of area utilised under each category (total, state, and private) is calculated from the total area under that category in the state/UT. The blanks denote non-existence of SEZ with the state/private sector in that state or UT.

Source: Computed from GOI, 2014.

Land utilisation is slightly above 50 per cent only in the state of West Bengal and Gujarat. At the promoter level, in the privately developed SEZ, Gujarat tops in land utilisation at 51.7 per cent. Interestingly, in Madhya Pradesh, Jharkhand, Uttarakhand, Nagaland, and Goa, no land has been utilised in the privately developed SEZs. Since the per cent land utilised also covers the area under amenities, no utilisation means that the private sector in these states has not yet started work to develop the SEZs. In case of state government developed SEZs such situation exists in the UT of Dadar and Nagar Haveli. In state promoted SEZs, utilisation of land is 100 per cent in case of Gujarat and 73.76 per cent in West Bengal.

Extent of Vacant Land in Processing Area

Low utilisation of land in SEZs is also brought out by the extent of vacant land in the processing area (Table 2).

Table 2: Per cent Vacant Land in Processing Area to Notified Area (as on January 23, 2014)

State/UT	Total	State Government	Private Sector
Dadra and Nagar Haveli	100.00	100.00	
Goa	100.00		100.00
Jharkhand	100.00		100.00
Nagaland	100.00		100.00
Telangana	75.61	76.14	75.25
Punjab	67.04		67.04
Maharashtra	64.15	73.42	56.41
Chandigarh	59.60	59.60	
Tamil Nadu	50.90	38.56	57.59
Odisha	50.55	51.92	50.04
Kerala	48.20	46.75	69.34
Rajasthan	47.52	58.29	46.14
Karnataka	45.76	52.86	43.00
Gujarat	40.13	0	41.57
Chhattisgarh	38.18		38.18
West Bengal	36.73	26.24	54.20
Madhya Pradesh	31.09	30.00	37.07
Uttar Pradesh	28.39	92.89	14.93
Andhra Pradesh	27.63	32.04	26.43
Haryana	4.08		4.08
Uttarakhand	0		0
Total	44.6	52.08	43.17

Note: The percentage of area vacant under each category (total, state, and private) is calculated from the total area under that category in the state/UT. The blanks denote non-existence of SEZ with the state/private sector in that state or UT.

Source: Computed from GOI, 2014.

From Table 2 one can notice that vacant land in processing is almost half the area (45 per cent of the total notified area) under SEZs in the country. Moreover, in Dadra and Nagar Haveli, Goa, Jharkhand, and Nagaland, the entire notified area meant for processing is vacant. Among other states, the share of vacant land is notable in Telangana, Maharashtra, and Tamil Nadu. These are states with large areas and the higher number of SEZs in the country.

In privately developed SEZs, vacant land is the largest in Telangana (75.25 per cent). Vacant land amounts to over 50 per cent of the notified land in the states

of Kerala (69.34 per cent), Punjab (67.04 per cent), Tamil Nadu (57.59 per cent), Maharashtra (56.41 per cent), and West Bengal (54.20 per cent). In state government promoted SEZs, vacant land in processing area varies from 50 per cent to 93 per cent, with the highest in Uttar Pradesh, followed by Telangana, Maharashtra, Rajasthan, Karnataka, and Odisha.

There are, for example, sectors like IT/ITES, biotechnology, gems and jewellery and handicrafts, which are less land-intensive than say engineering, textiles, or chemicals. However, there is no difference in the extent of vacant lands.

The regression analysis reveals operational status as the only factor significantly impacting land utilization (Table 3).

Table 3: Regression Model of Land Utilisation in an SEZ

Independent Variables	β Coefficients	Standard Error
Developer	2.664	3.354
Sector	-1.809	3.361
Size	-2.66	2.930
Operational Status	42.993 ***	2.765
Accessibility	-1.623	3.393
Accessibility & Land Quality	-3.362	3.246
Constant	11.574 *	4.625
N	399	
R-square	0.391	
Adj. R-square	0.382	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

This raises an important issue of why then SEZs remain non-operational beyond specified years. One related aspect with the gap in operation is the number of additions and de-notifications.

IV Additions and De-notification of SEZs

By analysing the SEZ data of 2014 and 2017 (Table 4), we found additions of 49 SEZs and probable de-notification of 78 SEZs in the country between 2014 and 2017 (those SEZs of 2014 which do not appear in the list of 2017).

Out of the 49 SEZs added, 37 have been added in just three states - Telangana (16) Karnataka (14), and Maharashtra (7). Moreover, majority of these SEZs are essentially in the IT/ITES sector (Table 5).

Table 4: Change in the Number of SEZs between January 2014 and December 2017

State/UT	Notified SEZs (2014)	Removed SEZs	New Notified SEZs	Total Notified SEZs (2017)
Andhra Pradesh	33	7	2	27*
Chandigarh	2			2
Chhattisgarh	1			1
Dadra and Nagar Haveli	1	1		
Goa	3			3
Gujarat	33	5		27*
Haryana	29	9		20
Jharkhand	1			1
Karnataka	40	3	14	51
Kerala	25		1	26
Madhya Pradesh	10	4		6
Maharashtra	66	22	7	51
Manipur			1	1
Nagaland	2			2
Odisha	5	1	1	5
Punjab	2		1	3
Rajasthan	12	3		9
Tamil Nadu	58	8	2	52
Telangana	46	5	16	57
Uttar Pradesh	24	5	4	23
Uttarakhand	1	1		
West Bengal	12	4		8
Total	406	78	49	375

Note: In Andhra Pradesh, Kakinada SEZ 1 and 2 were merged in 2016, which brought the number to 27 rather than 28. Similarly, in Gujarat, Adani, and Mundra Ports were merged in 2016, thus bringing the number down to 27 rather than 28.

Source: Computed from GOI, 2014 and GOI, 2017a.

Table 5: New Notified SEZs (Between January 2014 and December 2017)

State	IT/ ITES	Electronic Hardware and Software Inc ITES	Multi Product	Textile	Footwear	Agro Based	Biotechnology	Total
Telangana	15						1	16
Karnataka	13	1						14
Maharashtra	5	1	1					7
Uttar Pradesh	2	1		1				4
Tamil Nadu	1				1			2
Andhra Pradesh	1					1		2
Kerala	1							1
Odisha			1					1
Punjab	1							1
Manipur	1							1
Total	40	3	1	1	1	1	1	49

Source: Computed from GOI, 2014 and GOI, 2017a.

Highest number of SEZs were de-notified in Maharashtra (Table 4). Some 22 SEZs have probably been de-notified in the state. Haryana has also probably de-notified nine SEZs. Clearly, these are cases of total de-notification, partial de-notification may also have taken place after the revision of the area in August 2013. The de-notification is basically of private SEZs and mainly of the one in IT/ITES sector (Table 6).

Table 6: SEZs Removed Between January 2014 and December 2017

Sector	Private	State
IT/ITES	29	5
Electronic Hardware and Software Inc ITES	9	1
Biotechnology	4	
Energy	3	
Textile	3	3
Service	2	
Engineering	2	
Agro and Food Processing	2	2
Mineral	2	1
Gems and Jewellery	2	1
Pharmaceutical	2	1
Chemical	1	
Handicraft	1	1
Multiproduct		1
Total	62	16

Source: Computed from GOI, 2014 and GOI, 2017a.

V Time Lag between Notification and Operation

From the list of existing SEZs (as on December 01, 2017) it is found that many of them were notified in the years immediately following the implementation of the SEZ Act. Figure 3 presents SEZs as existing in December 2017 by their year of notification. In addition, if these SEZs have been operationalised by December 2017, they have been marked in the figure 3 corresponding to their year of notification.

The peak in notification is observed in 2007 with most of them being notified between 2006 and 2009. The slightly upward trend is noticed from 2015 onwards, but this is not uniform across all states. In 2016, 11 SEZs were notified with 9 in the states of Karnataka and Telangana. In 2017, these two states accounted for 22 of the 31 notified SEZs.

Figure 3: Trend in Notification and Operation of SEZs (as on December 01, 2017)
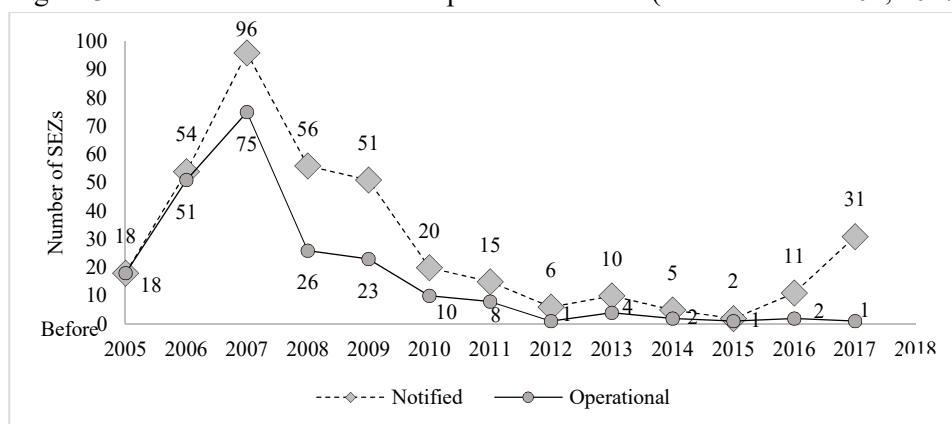
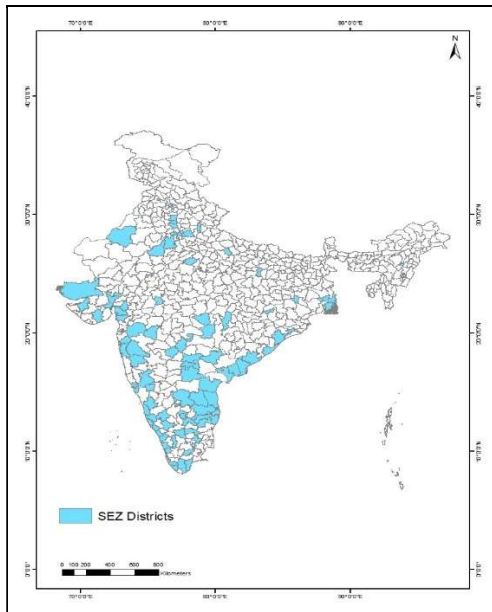Source: Constructed using GOI, 2017a and GOI, 2017b.

As per the Rules, the SEZ must begin operations within three years of receiving formal approval (GOI 2010). To be precise, at least one unit should start functioning within three years of receiving the formal LOA. By giving leverage of three years, one may ignore the proportion of operational SEZs in 2015 and later years; however, the proportion of operational SEZs notified earlier than 2015 is low. It can be clearly seen from Figure 3 that the operational percentage of SEZs notified as early as 2008/2009 is below 50 per cent. SEZs that were notified in 2006/2007 have best operational level. Of 54 SEZs that were notified in 2006, 51 are operational. Of 2007, it is 96 notified, of which 75 are operational. In all other years, the operational level is low, falling to 17 per cent of those notified in the year 2012 (notified – 6; operational – 1).

VI Locational Aspects of SEZs

Figure 4 displays the location of SEZs in the country in terms of districts. From the figure, one can see that the SEZ spread is more in the peninsular part of the country, with concentration in coastal districts. High external connectivity, ample availability of water resources, and dense population could be the reasons for such location of SEZs. In the northern part of the country, majority of the development has basically happened in districts neighbouring Delhi. In terms of number (based on Figure 4), SEZs are spread across 94 districts in the country.

Considering the attributes of districts in terms of accessibility and land quality (see Section II for criteria), the districts with SEZs are divided into two groups: preferred and unsuitable. A district with SEZs is said to be preferred if it is accessible (on the criteria of accessibility), and if accessible in land characterised by unproductive and scrub land (on the criteria of accessibility and land quality). A district is unsuitable for locating SEZ if it is inaccessible or having agriculturally productive land.

Figure 4: Districts with SEZs (as on December 01, 2017)

Source: Constructed from GOI, 2017a.

Figure 5: Location of SEZs based on Accessibility Criteria (as on December 01, 2017)
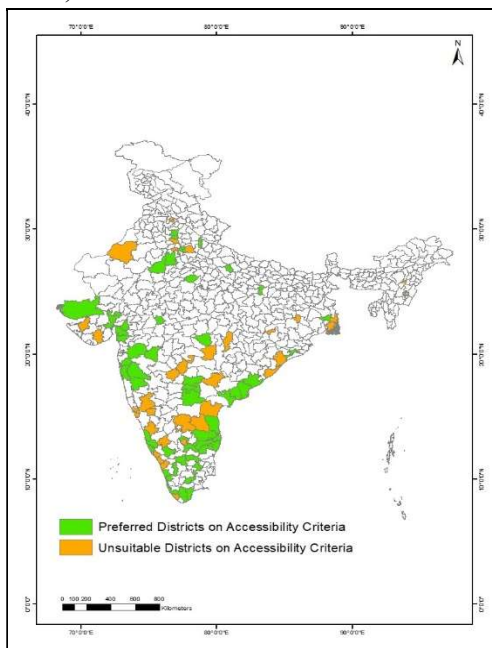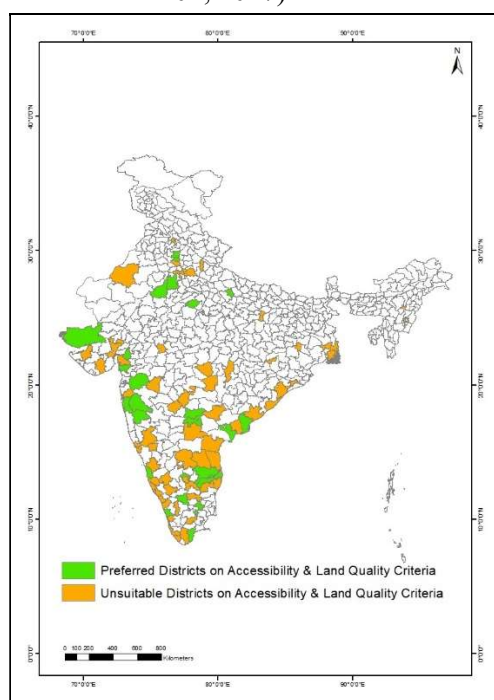

Source: Constructed using accessibility maps from Ramachandran and Biswas (2007) and database from GOI, 2017a.

From Figure 5 it can be seen that most of the districts with SEZs are the ones with accessibility advantage. Based on this criterion, the SEZs are spread across 58 preferred districts (Figure 5).

In terms of location in districts characterized by accessible unproductive and scrub land, the SEZs are located only in 26 preferred districts (Figure 6). Remaining 68 districts of locations of SEZs are unsuitable districts. It means 68 districts of location of SEZs are characterised by agriculturally productive land.

Figure 6: Location of SEZs based on Accessibility and Land Quality Criteria (as on December 01, 2017)

Source: Constructed using accessibility and land quality maps Ramachandran and Biswas (2007) and database of GOI, 2017a.

In terms of number of SEZs, accessibly preferred districts account for 270 SEZs (Table 7). With accessibility and unproductive and scrub land together, number of SEZs in preferred districts reduced to 122. The remaining 253 SEZs are located in districts with agriculturally productive land.

In terms of accessibility factor, SEZs are mostly located in preferred districts. In Tamil Nadu, all SEZs are located in accessible districts. But when it comes to accessible districts with unproductive and scrub land, the SEZs are mostly located in unsuitable districts – a feature found in all states with the exception of Telangana, Maharashtra and Rajasthan. In case of Telangana out of 53 SEZs located in accessible districts, 52 are located in districts characterized by

unproductive and scrub land. In Maharashtra, out of 48 SEZs, 33 are accessible in unproductive land type district. The SEZs located in productive land in Maharashtra are 18. Rajasthan has 9 SEZs out of which 8 are preferably located with respect to accessibility. These 8 are also preferable with respect to land quality needed in terms of unproductive and scrub land type.

Table 7: State-wise Number of SEZs in Preferred and Unsuitable Districts (as on December 01, 2017)

State	Based on Accessibility Criteria of Districts		Based on Accessibility and Land Quality Criteria of Districts	
	Preferred	Unsuitable	Preferred	Unsuitable
Telangana	53	4	52	5
Tamil Nadu	52		8	44
Maharashtra	48	3	33	18
Gujarat	25	2	8	19
Andhra Pradesh	22	5	6	21
Uttar Pradesh	22	1	1	22
Kerala	16	10	1	25
Karnataka	11	40	2	49
Rajasthan	8	1	8	1
Madhya Pradesh	6		1	5
Haryana	4	16	2	18
Odisha	2	3		5
West Bengal	1	7		8
Goa		3		3
Punjab		3		3
Chhattisgarh		1		1
Nagaland		2		2
Manipur		1		1
Jharkhand		1		1
Chandigarh		2		2
Total	270	105	122	253

Source: Computed from GOI, 2017a, and Figures 5 and 6.

We may thus conclude that SEZs not only enjoy accessible locations, but they are also located in productive lands. The developer does not appear to be suffering from any constraint as far as location is concerned.

VII Summing Up

The paper analyses the level of land utilisation in SEZs. The analysis is carried out at the state level considering the factors of promoter, sector, accessibility and land quality. From the analysis, one finds utilisation of land to the extent of just 37 per

cent of notified lands. Within processing area, vacant land constitutes nearly half of the area under SEZs in the country. Vacant land is significant in states like Telangana, Maharashtra, and Tamil Nadu, notable with respect to quantum of SEZ area and number of SEZs in the country. Operational percentage of exiting SEZs, notified as early as 2008/2009, is below 50 per cent. Between the year 2014 and 2017, 49 new SEZs have been notified while 78 SEZs have probably been de-notified largely in Maharashtra and Haryana. The de-notifications are mainly of private SEZs and that, too, of those in IT/ITES sector. Most of the SEZs have locational advantage. From 94 districts with SEZs, 58 meet the accessibility criteria in terms of broad-gauge railways, highways, and level of urbanisation.

There is thus a clear case of substantial unutilised land with SEZs. This has repercussion not just on the use (misuse) of land but also on the policy of SEZs as an instrument of industrialisation and concomitant employment growth. The change in tax incentives in 2011/2012 (DDT, MAT) may have made SEZs non-functional. But the point is about why others are functional despite such change and also why new SEZs have come up after 2012. This needs in-depth analysis of the tax regime using primary survey. The change in export demand may also have bearing on utilization of land. But the question is, are these factors not taken into account while preparing the proposals for setting up of an SEZ? Every proposal for setting up of SEZs includes prospective investment in SEZ, and also the land going to be utilized separately in processing as well as non-processing. There appears to be a problem at the level of the policy itself. There is absence of realistic scrutiny of the proposals.

Sizes are also arbitrarily defined. Had the sizes been scientifically determined, the reduction in specification of area would not have taken place. From 2006 to 2013, there was a 50 per cent reduction in area requirement of many of the sectors (GOI 2013). In another notification dated September 19, 2018, area requirement of 10 ha for biotechnology and health sector (excluding hospitals) was withdrawn (GOI, 2018a). The notification of December 17, 2019, made significant change in the land area requirement (GOI 2019). According to this notification, all existing notified SEZs would deem to be multisector SEZs with minimum land area requirement of 50 ha/25ha/no minimum. The change in the principle requirement of land size over time shows lack of any principle in deciding the sizes. The reduction in land size requirement for SEZs may lead to de-notification of the excess land held by different SEZ developers. But the question is whether or not the de-notified (excess land) land would be used for industrial purpose.

Unutilised land with SEZs appears to be a result of the transfer of large areas of land from the government (in all those cases where government transfer or acquire land on the behalf of the private promoters).

Though no speculative use is expected in case of government SEZ, the large extent of vacant land can be taken as an indicator of inefficiency. In private SEZs, other than the indication of inefficiency, the vacant land also exhibits future use and land hoarding. Since the majority of the SEZs are located in proximity to million cities, the speculation cannot be missed. The proximity to urban areas and

speculative use are well documented in the literature. The urban areas have tendencies to sprawl which make their fringes the preferred site for investment to gain from speculation.

From the analysis accessibility appears to be only criteria that has been applied since the promoters of SEZ are only concerned with this and ignore 'land quality' considerations, which capture social and environmental dimensions. The fact that the original Act only hopes that agriculturally fertile land is not encroached upon without framing any rules relating to it. There is a need to amend the Act by excluding areas under forests, alluvial soil (dimensions of land quality) from being considered for SEZ.

With respect to what need to be done to resolve the issue of already existing unutilized land with SEZs, the following possibilities other than reducing size emerge: First and foremost is developing new units in existing SEZs. Only when existing zones are saturated should new SEZs come up. In fact, the power delegated to Development Commissioners with respect to units from one SEZ to another within their jurisdiction should be used to saturate SEZs one by one (see *Lok Sabha*, March 4, 2020). With declaration of all SEZs as multi sectoral, such process would be easy (GOI 2019). Focus may be laid on first-time entrepreneurs or first-time exporters. The developer should be entrusted with functions like finding markets for units, helping units to establish linkages with clients, to innovate, and so on. In other words, handholding needs to be ensured. Central government also, by involving developers, could undertake all India export demand mapping for each and every product/service. The government could further enrich the database by adding information of export units outside SEZs.

An option could also be to throw open the SEZs to meet domestic demands as well. The Expert Group appointed by the government also recommended the same (GOI 2018b). This will not only stimulate economic growth and employment, but also leverage investments. As per current mechanism, sale is allowed in domestic area on payment of custom duties. Unless one has a niche market for the product, such a sale can become unprofitable. The government in Budget 2022 declared introduction of new SEZ law by end year 2022. The new legislation is expected to allow domestic sale by charging some equalisation levy so as not to disadvantage domestic units (*Business Standard*, February 02, 2022). In fact the character of the SEZs as export enhancing areas should not be altered. SEZs should be promoted for export purposes and for this to happen effectively, the incentives and conditions in SEZs should be linked to quantum of exports, investment achieved, and location of SEZs in unproductive lands. This would remove unnecessary duplication with other zonal schemes like Industrial Clusters, Investment and Manufacturing Zones.

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Role of MGNREGA in Creating Assets and Enhancing Agriculture and Allied Activities in Karnataka

Pesala Peter and I. Maruthi

Under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the government of India provides for the creation of durable assets. The individual assets creation is helping the farmers in different ways. The current study's focus is on the role of individual asset creation through MGNREGA and how the programmes/schemes are helping the farmers. During 2019-2020, in India as a whole, a total of 18,60,419 individual assets were created. In the case of Karnataka state in particular, 66,259 individual assets were created. The total assets (individual) created in Karnataka thus formed a significant share. Based on the number of man-days generated by a district, this study divided the districts into high performance and low performance districts. In Karnataka, out of 30 districts, the study selected 10 high performance and 10 low performance districts and one high population district. In each district, one Gram Panchayat (GP) was selected and in each GP, 30 beneficiary households were selected through transit walks in our field visit during the three-year period identified for the study, i.e., 2016-2017, 2015-2016 and 2014-2015. The total sample size was 630. The main objective of the current paper is to investigate how the asset creation has helped the farmers in Karnataka. The main findings of the study are: Nearly half of the households benefited by assets creation during our study. Secondly, the total land cultivation increased. A small number of households benefited from horticulture assets creation and sericulture under the MGNREGA scheme.

Keywords: Individual assets, MGNREGA, Help to agriculture and allied activities, Karnataka

Introduction

Under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme, the government of India provides for the creation of various durable assets. The created assets are very useful to the farmers to extend

their lands and improve their agricultural production and productivity. The production depends upon the type of asset created by the farmer. Under MGNREGA, individual assets creation is taking place in the entire Karnataka state. In many places, new farm ponds, dug wells, other water harvesting structures, livestock shelters, fish drying yards and other assets are created under the individual asset creation programme. These assets will provide water facilities, infrastructure facilities and other suitable facilities to help enhance agricultural production and productivity. This leads to an increase in the farmer's income in the long run. There are two types of asset creation under this scheme. The first one is asset creation at community level. This is particularly community work like the construction of roads (cement roads) and community ponds, water conservation etc. Secondly, asset creations at an individual level. The current study is focused on the role of individual asset creation through MGNREGA and how the programme/scheme helps the farmers. For any individual asset creation, farmers require lands in their own names and only then are they able to create assets. Till January 31st, 2020 in India, a total 18,60,419 individual assets were created during 2019-2020. In the same period, 66,259 individual assets were created in the case of Karnataka (MGNREGA website). The share of Karnataka in all-India level is nearly four per cent (3.6 per cent). In India, as of now, a total 4,76,59,406 assets have been created. Among the asset created states, Andhra Pradesh occupied the first place and it contributed 63,10,718 (13.24 per cent), followed by UP-62,23,302 (13.06 per cent), West Bengal-47,07,243 (9.88 per cent), Madhya Pradesh-43,62,841 (9.15 per cent), Telangana-37,90,360 (7.95 per cent) and Karnataka-30,92,080 (6.49 per cent). In other words, Karnataka occupied the sixth place. According to Mishra (2011), majority of the households reported that MGNREGA helped to creating assets. Due to MGNREGA, most of the marginal and small farmers participated in individual assets creation and it helped to improve the productivity in their own farms.

Individual Asset Creation in Karnataka

The study observed that under individual asset creation, the expenditure gradually increased from 2015-2016 to 2017-2018 and then onwards it had declined because the sanctioned amount had been declining gradually (Table 1). It also observed that the individual asset creation is very important for rural households. It was helping the farmers in cultivating different crops on their lands. Most of the money was spent on infrastructure for the promotion of livestock shelter construction/livestock shed construction (40 per cent) and followed by works for improving productivity of land (34 per cent), plantation related works (20 per cent) and rural housing and related works (5.8 per cent) in 2015-2016. In a similar way, in the year 2016-2017, a high amount was spent on works for improving productivity of land (34 per cent). A majority of the amount was spent on rural housing and related works in the remaining three years (2017-2018 to 2019-2020). It indicates that in rural Karnataka, people gave more importance to the

construction of houses. This they felt was important to retain their dignity in the village.

Table 1: Amounts Sanctioned/Spent for Creation of Individual Assets in Karnataka from 2015 to 2019

(₹ in lakhs)

Year	Works for improving productivity of land*	Plantation related works*	Rural housing and related works*	Infrastructure for promotion of livestock*	Total
2015-2016	39240 (34.1)	23008 (20.0)	6712 (5.8)	46027 (40.0)	114987
2016-2017	87698 (34.3)	27654 (10.8)	56241 (22.0)	84177 (32.9)	255770
2017-2018	661182 (23.9)	237169 (8.6)	1655412 (59.9)	211550 (7.7)	2765313
2018-2019	57184 (23.1)	27853 (11.3)	101052 (40.9)	61050 (24.7)	247139
2019-2020	12756 (19.4)	8111 (12.3)	31392 (47.7)	13577 (20.6)	65836

Notes: http://mnregaweb4.nic.in/netnrega/MISreport4.aspx,* indicates the percentage to row total.
Source: The authors' estimate based on mentioned data sources.

Total Assets Completed and Total Expenditure in Karnataka

The study observed that the total completed works are increasing gradually from 2015-2016 (6.95 lakhs) to 2018-2019 (9.46 lakhs). It indicated that there is a positive trend in work completion. There are two components here. The first one is the number of completed works and the second one is ongoing works. The number of completed works data shows that there is an increasing trend. The study observed that the total expenditure was increasing gradually from 1,82,193 lakhs in 2015-2016 to 3,98,489 lakhs in 2019-2020. But in 2017-2018, the total expenditure declined (₹2,99,949). The expenditure is divided into three categories namely: Wage, Material and Skilled Wage and Total Administration Expenditure. Among the three expenditures, Wage expenditure was higher in all study years followed by Material expenditure and Total administration expenditure (Table 2).

Table 2: Total Assets Completed and Total Expenditure in Karnataka between 2015-2019

(₹ in Lakhs)

Name of the Component	2015-16	2016-17	2017-18
(A) Number of Ongoing Works (₹ in Lakhs)	3.77 (54.2)	4.86 (44.6)	5.08 (43.5)
(B) Number of Completed Works	3,18,148.00 (45.8)	3,91,266.00 (55.4)	3,90,972.00 (56.5)
Total No. of Works Taken up (New+ Spill Over) (₹ in Lakhs) (A+B)	6.95 (100)	8.77 (100)	8.99 (100)
(A) Wages	1,12,045.83 (61.5)	2,15,463.57 (65.1)	2,01,682.07 (67.2)
(B) Material and Skilled Wages	60,931.08 (35.22)	1,05,829.14 (32.94)	91,592.22 (31.23)
(C) Total Adm. Expenditure	9,216.36 (5.06)	9,497.34 (2.87)	6,666.12 (2.22)
Total Exp. (A+B+C)	1,82,193.28 (100)	3,30,790.05 (100)	2,99,940.41 (100)

Contd…

Table 2: Total Assets Completed and Total Expenditure in Karnataka between 2015-2019

(₹ in Lakhs)

Name of the Component	2018-19	2019-2020
(A) Number of Ongoing Works (₹ in Lakhs)	5.59 (40.9)	6.31 (28.2)
(B) Number of Completed Works	3,87,189.00 (59.1)	2,47,184.00 (71.9)
Total No. of Works Taken up (New+ Spill Over) (₹ in Lakhs) (A+B)	9.46 (100)	8.78 (100)
(A) Wages	2,32,504.72 (64.5)	2,47,943.58 (62.2)
(B) Material and Skilled Wages	1,17,835.44 (33.63)	1,42,945.66 (36.57)
(C) Total Adm. Expenditure	10,087.22 (2.8)	7,600.54 (1.91)
Total Exp. (A+B+C)	3,60,427.38 (100)	3,98,489.79 (100)

Note: https://mnregaweb2.nic.in/netnrega/homestciti.aspx?state_code=15&state_name=KARNATAKA

Source: The author's estimated based on mentioned data sources.

Review of Literature

Singh Nandini (2013) focused on MGNREGA's impact on migration and asset creation. The study observed that women's participation rate was increasing under MGNREGA work. According to the study, most of the MGNREGA workers had a little land or no land and their lands were devoid of irrigation facilities. The study conducted a focus group discussion in Dokur village of Mahabubnagar district in Andhra Pradesh and found that seasonal migration was higher in the village. Based on secondary information, the study observed that the employment intensity was low while creating rural assets and secondly, the quality and durability also low.

Narayanan, *et. al*. (2014) in their study, focused on MGNREGA works and their impact in Maharashtra state. The study concentrated mainly on two things: First to verify the assets that have been created under the MGNREGS based on availability of administrative data and recording quality of assets. Secondly, to examine the concern that many of MGNREGS works are only on paper and do not in fact exist. For the assessment of two things, the study selected 20 of the 33 districts in Maharashtra. One block was chosen from each district. The block was selected purposely to represent the best performing blocks in terms of expenditures on the programmes during the financial years 2012-2013. In each block, five Gram Panchyats (GPs) were selected. The study interviewed 4881 beneficiary households and verified 4266 assets spread across 100GPs. Among the 4881 respondents, around 15 per cent were women. According to the authors, the assessment of MGNREG work is a technical subject and based on the opinion of beneficiaries, the study considered aspects of their quality and usefulness. The study considered the beneficiary perceptions and found that the overall beneficiary opinion was that whatever asset was created was very useful, as reported by more than half the respondents. Secondly, 40 per cent of them said that the assets were somewhat useful and only eight per cent of them reported that they were not useful in general. Private land assets were created and it was very useful as reported by 63 per cent of the beneficiary households. Thirdly, a majority of respondents said that irrigation assets helped them to expand the cultivation area and obtain an extra

crop as compared to previous years (in previous years it was fallow land). Fourthly, the construction of toilet was very high and it comes under other works. And the toilet was very useful for the households. About 92 per cent of the beneficiary households' main occupation was agriculture.

John and Georgia (2016) conducted their study in Pullambadi Block in Tiruchirappalli district in the state of Tamil Nadu. The study followed the purposive sampling method. The study tested chi-square test of goodness-of-fit. And the main findings of the study are: About 93 per cent of respondents felt that MGNREGA did not help them to purchase durable household assets while nearly seven per cent felt the MGNREGA helped them to purchase durable assets. About 55 per cent of the respondents reported that MGNREGA helped them to fulfill their biological needs.

ILO (2016) expressed the view that the MGNREGA scheme has helped women and economically backward communities by creating productive assets. In addition to that, the study mentioned that poverty is also most acute among households headed by females and among SC and ST households in India. The study mentioned that the programme is demand-based and helps those who are willing to work as unskilled labour in rural areas.

Saikia (2017) focused on asset creation through MGNREGA in Sibsagar and Dhemaji districts in Assam state. The study concentrated on projects approved, completed and ongoing from2008-2009 to 2015-2016. It selected two blocks in each district. The Gaurisagar development block and Amguri development blocks come under Sibsagar district. Murkongselek development block and Sissiborgaon development block come under Dhemaji district. The study found that the largest completion of work was fisheries, followed by water conservation, water harvesting, rural connectivity, drought proofing, land development, flood control and protection. The performance of Dhemaji district was better as compared to Sibsagar district.

Singh and Jain (2017) studied assets creation in Sangrur and Barnala districts of Punjab. The study used secondary and primary data. It selected ten blocks in Sangrur and three blocks in Barnala district. In each block, a minimum of two villages were selected. The total surveyed villages were 28 and the total beneficiaries were 150. The study found that about 88 per cent of beneficiaries expressed the view that assets created benefited the village community. One village constructed a pond across nearly four acres of land and it helped in raising the water levels. The study's main observation was that MGNREGA helped to create assets in selected districts in Punjab.

According to Kundu Moumita (2018), most of the planning, strategies and programmes of our country were oriented toward urban society. This study's aim was to assess the performance of MGNREGA in community asset creation and the study used secondary data. The study used some variables and those were the total number of works, number of ongoing works, and number of completed works, number of assets created and category-wise creation of assets. The study tested percentage, t-test and ANOVA. It examined the performance of MGNREGA in

Durgapur Faridpur block. The study considered six Gram Panchyats and the five financial years (2013-2014 to 2017-2018) for the assessment. The study finds that the completion of works was better in study state (West Bengal) as compared to India. The study observed that the performance of MGNREGA was satisfactory in study area (Durgapur).

Methodology

In Karnataka state, out of 30 districts, the current study selected 10 high performance districts and 10 low performance districts. In addition to that, one high population district was selected for the study. The total sample districts were 21. Based on the number of man-days generated by the district, the study divided high and low performance districts. In each district, one Gram Panchayat (GP) was selected based on the above-said criteria. The 30 beneficiaries selected through transit walk during our field visit during the three-year period were identified for the study, i.e., 2016-2017, 2015-2016 and 2014-2015.Hence the total sample size was 630 (Table 3). The primary data was collected during the months of March-May, 2018. The study emphasized on asset creation through MGNREGA. The study divided pre-asset and post-asset creation and households' improvement in the study's 21 GPs. The main objective of the paper was: to investigate how the asset creation helped the farmers in Karnataka state.

Table 3: Selected Total Sample GPs, Districts in Karnataka

Highest/Low/Category-C Districts		Active Participation HHs/ Beneficiary
Districts	GP	Total Sample
Highest Performing Districts		
Kalaburagi	Koodi	30
Raichur	ToranDinny	30
Belagavi	Handigund	30
Davangere	Harakanalu	30
Ramanagar	Herindyapanahalli	30
Mysuru	Kethupura	30
Davangere	Hosakote	30
Haveri	Karur	30
Hassan	Akkanahalli	30
D.Kannada*	Munduru	30
Total	10	300
Lowest Performing Districts		Total sample
Bidar	Maniknagar	30
Yadgir	Chapetla	30
Dharwad	Devaragudinihal	30

Table 3: Selected Total Sample GPs, Districts in Karnataka

Highest/Low/Category-C Districts		Active Participation HHs/ Beneficiary
Districts	GP	Total Sample
Chikkamagaluru	Markal	30
Kolar	Ammanallur	30
Mandya	Shettahalli	30
Shivamogga	Antharagange	30
Gadag	Antur	30
Kodagu	Sampaje	30
Udupi	Yellur	30
Total	10	300
Based on population (Category– C)		Total sample
Belagavi	Bannur	30
Grand Total	21	630

Note: *Dakshina Kannada.

Source: Primary data collected in 2018.

Results and Discussion

Among 630 active participating households, 86 per cents (539 households) had land at the time of our study and the remaining 14 per cents (91 households) were landless. Reddy, *et. al.* (2016) mentioned that most of the SC households' status was landless. But the MGNREGA scheme as a whole had provided livelihood to the poor people, women, small and marginal farmers, SC and ST. According to our study, the average land size was higher in the OBC (3.02 acres) category, followed by general (2.89 acres), ST (2.56 acres) and SC (1.79 acres). Here the average land size indicates that for SC, average land size is low as compared to the other social groups. Our study results revealed that out of a total 630 active participation households, 45 per cent were benefited by assets creation during our study. Among the social groups, assets creation was more in Other Caste (57 per cent) households, followed by ST (47 per cent), SC (44 per cent) and Backward Caste households (42 per cent). In contrast, 55 per cent of the households did not get the benefit of assets creation during three years (2014-2015 to 2016-2017) (Table 5).

Table 4: Land Holding of Sample Households in Karnataka

Particulars of Land	Social Group				
	SC	ST	OBC	OC	Total
Yes	91 (81.3)	68 (88.3)	291 (84.8)	89 (90.8)	539 (85.6)
No	21 (18.8)	9 (11.7)	52 (15.2)	9 (9.2)	91 (14.4)
Total	112 (100)	77 (100)	343 (100)	98 (100)	630 (100)
Total and average land	163.34 (1.79)*	174.3 (2.56)*	877.84 (3.02)*	256.99 (2.89)*	1472.47 (2.73)*

Note: *Indicates the average land.

Source: Primary data collected, 2018.

Source of Assets Information in Sample Households in Karnataka

Awareness of the assets creation scheme is very important to rural households. In rural areas, some of the programme's potential beneficiaries are not aware due to lack of sources, facilities, not being interested and other reasons. To get individual assets, awareness is very important regarding who is providing facilities and we brought to fore this information here. Among the asset creation households (284), nearly 55 per cent of them approached the GP head to get the asset creation, followed by those who approached the Gram Panchayat Secretary (GPS)/Gram Rozgar Sevak (GRS) (40 per cent), offered by GP head (seven per cent), selected for the benefit by the GS (0.7 per cent) and paid commission to get it (0.35 per cent). Among the social groups, to get the asset creation, 57 per cent of SC households approached the GP head and 69 per cent of ST households approached the GPS/GRS, a majority of the BC beneficiary households approached the GP head (56 per cent) and in a similar way, 56 per cent of OC category households approached the GP head (Table 5).

Table 5: Details of Individual Assets Creation and Social Groups in Karnataka

Particulars	Social Group				Total
Did you get individual asset	SC	ST	BC	OC	
Yes	49(43.75)	36(46.75)	143(41.70)	56(57.14)	284(45.08)
No	63(56.25)	41(53.25)	200(58.31)	42(42.86)	346(54.92)
Total	112(100)	77(100)	343(100)	98(100)	630(100)
If yes, whom did you approach?					
Approached the GP head	28(57.14)	11(30.56)	78(54.55)	31(55.36)	148(52.11)
Approached the GPS/GRS	19(38.78)	25(69.44)	48(33.57)	22(39.29)	114(40.14)
Was offered by GP head	2(4.08)	0(0.00)	14(9.79)	3(5.36)	19(6.69)
Was selected for the benefit by the Gram Sabha	0(0.00)	0(0.00)	2(1.4)	0(0.00)	2(0.7)
Paid commission to get it	0(0.00)	0(0.00)	1(0.7)	0(0.00)	1(0.35)
Total (who got the individual asset)	49(100)	36(100)	143(100)	56(100)	284(100)

Source: Primary data collected, 2018.

Type of Asset Creation in Sample Households in Karnataka

Abraham (2016) studied the creation of assets in the four south Indian states of Andhra Pradesh, Kerala, Karnataka and Tamil Nadu. The durability of assets created under MGNREGA varied from place to place. The study finds that a majority of the assets required maintenance. Our study identified a total of 33 assets created in 2014-2015. Among the assets, the construction of livestock shelters (30 per cent) were the highest, followed by farm pond (21 per cent), toilet /sanitation (15 per cent), plantation and farm forestry (12 per cent), and dug wells, sericulture and development of fallow or waste lands (three per cent). In general, most of the rural households own cattle/animal sheds. To ensure safety of cattle or

protection from the rain/cold, households constructed cattle sheds/houses. Within the SC community, 43 per cent benefited through the construction of livestock shelters, followed by house construction (29 per cent), dugs (14 per cent) and development of fallow or waste land (14 per cent). In the case of ST households, 40 per cent benefited from the construction of livestock and 24 per cent of BC households benefited from the construction of livestock shelters, and in the case of OC, 25 per cent of them benefited from plantation and farm forestry (Table 6).

The assets creation increased during 2015-2016 as compared to 2014-2015. In the mentioned year, 79 households benefited from assets creation. Among the households, 52 per cent come from BC category, followed by SC (22 per cent) ST (15 per cent), and OC category (11 per cent) households benefited during the mentioned year. Among the assets, 39 per cent of them benefited from livestock shelters, followed by house construction (20 per cent), farm pond (14 per cent), toilet/sanitation (11 per cent), water recharge/ irrigation (five per cent), sericulture (four per cent), dug wells (one per cent), other water harvesting structures (one per cent), horticulture (one per cent), plantation and farm forestry (one per cent), and development of fallow or waste lands (one per cent). Within the social groups, 35 per cent of the SC households benefited from livestock shelters followed by house construction (24 per cent) and toilets (12 per cent). In the case of ST, 42 per cent of them benefited from livestock shelters and nearly 37 per cent of BC households benefited from livestock shelters and 20 per cent from house construction. In a similar way, 56 per cent of OC category households benefited from livestock shelters (Table 6).

A Neetha and Dimple Tresa Abraham (year not mentioned) in their study stated that the livestock shelter was the major work under category-B and that a majority of the households utilized it in Karnataka and Madhya Pradesh (MP) states. The study observed that the beneficiaries' prospects improved and the assets creation was useful for creating hygienic sheds for cattle rearing, and incomes were rising due to these sheds. The incomes were earned through developing the dairy sector and the incomes rose higher in Karnataka as compared to MP. According to the study, livestock infrastructure works had a greater impact in terms of improvement in income when constructed under MGNREGA in Karnataka. As per the study's observation, a majority of the works was maintained and this infrastructure helped in directly or indirectly improving the income and it varied from household to household. It not only improved the beneficiary households' income but also the cattle/animals housed under such improved shelters were disease free; the cattle in turn yielded the dung and urine that was utilized for fertilizing crops, improving yields. This was a positive sign in Karnataka. The construction of cattle sheds is a labour intensive work, and hence many rural labourers benefited.

Table 6: Details on Individual Assets Creation under MGNREGA

Details of Individual Assets Created	Social Group				
	SC	ST	BC	OC	Total
Type of asset- A (2014-15)					
Dug well	1 (14.29)	0 (0.00)	0 (0.00)	0 (0.00)	1 (3.03)
Farm pond	0 (0.00)	1 (20.00)	5 (29.41)	1 (25.00)	7 (21.21)
Sericulture	0 (0.00)	0 (0.00)	1 (5.88)	0 (0.00)	1 (3.03)
Plantation & farm forestry	0 (0.00)	0 (0.00)	3 (17.65)	1 (25.00)	4 (12.12)
Development of fallow land	1 (14.29)	0 (0.00)	0 (0.00)	0 (0.00)	1 (3.03)
House construction	2 (28.57)	0 (0.00)	1 (5.88)	1 (25.00)	4 (12.12)
Livestock shelter	3 (42.86)	2 (40.00)	4 (23.53)	1 (25.00)	10 (30.3)
Toilet/ Sanitation	0 (0.00)	2 (40.00)	3 (17.65)	0 (0.00)	5 (15.15)
Total	7 (100)	5 (100)	17 (100)	4 (100)	33 (100)
Type of asset-(B) 2015-16					
Dug well	1 (5.88)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.27)
Farm pond	0 (0.00)	3 (25)	6 (14.63)	2 (22.22)	11 (13.92)
Other water harvesting structures	0 (0.00)	0 (0.00)	1 (2.44)	0 (0.00)	1 (1.27)
Horticulture	0 (0.00)	0 (0.00)	1 (2.44)	0 (0.00)	1 (1.27)
Sericulture	2 (11.76)	0 (0.00)	1 (2.44)	0 (0.00)	3 (3.8)
Plantation & farm forestry	0 (0.00)	0 (0.00)	0 (0.00)	1 (11.11)	1 (1.27)
Development of waste lands	0 (0.00)	0 (0.00)	1 (2.44)	0 (0.00)	1 (1.27)
House construction	4 (23.53)	3 (25)	8 (19.51)	1 (11.11)	16 (20.25)
Livestock shelter	6 (35.29)	5 (41.67)	15 (36.59)	5 (55.56)	31 (39.24)
Toilet/ Sanitation	2 (11.76)	1 (8.33)	6 (14.63)	0 (0.00)	9 (11.39)
Water recharge/ Irrigation	2 (11.76)	0 (0.00)	2 (4.88)	0 (0.00)	4 (5.06)
Total	17 (100)	12 (100)	41 (100)	9 (100)	79 (100)
Type of asset-(C) 2016-17					
Dug well	0 (0.00)	0 (0.00)	2 (2)	5 (10.42)	7 (3.54)
Farm pond	0 (0.00)	0 (0.00)	12 (12)	0 (0.00)	12 (6.06)
Other water harvesting structures	1 (3.45)	0 (0.00)	2 (2)	2 (4.17)	5 (2.53)
Horticulture	1 (3.45)	0 (0.00)	1 (1)	0 (0.00)	2 (1.01)
Sericulture	0 (0.00)	0 (0.00)	2 (2)	0 (0.00)	2 (1.01)
Plantation & farm forestry	4 (13.79)	3 (14.29)	3 (3)	8 (16.67)	18 (9.09)
DF or waste lands	0 (0.00)	0 (0.00)	3 (3)	0 (0.00)	3 (1.52)
House construction	10 (34.48)	7 (33.33)	30 (30)	17 (35.42)	64 (32.32)
Livestock shelter	11 (37.93)	7 (33.33)	39 (39)	15 (31.25)	72 (36.36)
Toilet/ Sanitation	2 (6.9)	4 (19.05)	4 (4)	1 (2.08)	11 (5.56)
Water recharge/ Irrigation	0 (0.00)	0 (0.00)	2 (2)	0 (0.00)	2 (1.01)
Total	29 (100)	21 (100)	100 (100)	48 (100)	198 (100)

Source: Primary data collected, 2018.

According to our study, a majority of people constructed livestock shelters and benefited in different ways. A majority (198) of the households were benefited in 2016-2017. Among the households, BCs (51 per cent) were the highest, followed by OC category (24 per cent), SC (15 per cent) and ST (11 per cent). Among SCs, 38 per cent were benefited by the construction of livestock shelters followed by houses (34 per cent). An equal percentage of STs were benefited by the construction of livestock shelters (33 per cent) and houses (33 per cent). In the case of BC households, 39 per cent of them benefited by livestock shelters, followed by houses construction (30 per cent) and the construction of farm ponds (12 per cent). The OC category households benefited by house construction (35 per cent) and livestock shelters (31 per cent). Among the all activities, 36 per cent of the households' were benefited by livestock shelters (Table 6).

Type of Asset Creation during Three Years (2014-2015 to 2016-2017)

The study pooled together three years and analyzed the data. The data results reveal that 284 households benefited from 310 individual assets. Here 26 of the households benefited by two assets. In the study area, 36 per cent of them benefited from the construction of livestock shelters, followed by house (27 per cent), farm pond (10 per cent), plantation and farm forestry (seven per cent) and the lowest asset was horticulture (one per cent). A study by Chauhan and Rajdeep (2016) finds that nearly 80 per cent of respondents had livestock shelters at the time of the interview. Our study data reveals that livestock shed construction was more than other assets.

In a similar way, our study results reveal that among the social group asset creation households, BC (51 per cent) were the highest, followed by OC category (20 per cent), SC (17 per cent) and ST (12 per cent). Nearly 38 per cent of the SC households constructed livestock shelters followed by house construction (30 per cent) and the lowest assets created included other water harvesting structures (two per cent), horticulture (two per cent) and development of fallow or waste lands (two per cent). Among the ST households, 37 per cent constructed livestock shelters and the lowest assets were created in plantation and farm forestry (eight per cent). There was not much difference in BC households and nearly 37 per cent of households constructed livestock shelters and similar results were found in OC households (Table 7). The construction of farm ponds and other water harvesting structures and dug wells helped to increase the beneficiaries' income. A study by Neethaand Dimple Tresa Abraham observed that in districts like Tumakuru and Ramanagara in Karnataka, check dams and farm ponds were constructed to tackle the climate stress, particularly scarcity of water. The construction of check dams, farm ponds and other irrigation facilities improved income in many ways. Because of availability of water during a critical phase, crop yield may be increased. In a similar way, the net sown area has a possibility to increase and due to this reason, the total income may be increased. Our study showed that households also

benefited by irrigation facilities and improved their income through the farm activities.

Table 7: Type of Assets (Consolidated) during 2014-2015 to 2016-2017

Type of Asset	Social Groups				
	SC	ST	BC	OC	Total
Dug well	2 (3.77)	0 (0.00)	2 (1.27)	5 (8.20)	9 (2.90)
Farm pond	0 (0.00)	4 (10.53)	23 (14.56)	3 (4.92)	30 (9.68)
Other water harvesting structures	1 (1.89)	0 (0.00)	3 (1.90)	2 (3.28)	6 (1.94)
Horticulture	1 (1.89)	0 (0.00)	2 (1.27)	0 (0.00)	3 (0.97)
Sericulture	2 (3.77)	0 (0.00)	4 (2.53)	0 (0.00)	6 (1.94)
Plantation and farm forestry	4 (7.55)	3 (7.89)	6 (3.80)	10 (16.39)	23 (7.42)
DF or waste lands	1 (1.89)	0 (0.00)	4 (2.53)	0 (0.00)	5 (1.61)
House construction	16 (30.19)	10 (26.32)	39 (24.68)	19 (31.15)	84 (27.10)
Livestock shelter	20 (37.74)	14 (36.84)	58 (36.71)	21 (34.43)	113 (36.45)
Toilet/ Sanitation	4 (7.55)	7 (18.42)	13 (8.23)	1 (1.64)	25 (8.06)
Water recharge/ Irrigation	2 (3.77)	0 (0.00)	4 (2.53)	0 (0.00)	6 (1.94)
Total	53 (100)	38 (100)	158 (100)	61 (100)	310 (100)

Source: Primary data collected, 2018.

Irrigation Facility for Individual Assets under MGNREGA

The study examined how many farmers cultivated a particular crop before the asset creation period and how many acres were cultivated after asset creation. Through this, we were able to know if cultivation of land increased after MGNREGA. According to Kundu and Sanjib (2016) MGNREGA generated income for the poor and improved the agricultural productivity and profitability in the long run by creating assets. Land development, water conservation, water harvesting, drought proofing, flood control, etc., serve to improve the yield per unit of land and this leads to increase in agricultural growth. The study emphasized on irrigation facilities provided under MGNREGA in the area. The study found that MGNREGA raised the irrigation facilities and due to this, cropping intensity was increased in almost all selected districts in West Bengal (WB) state during the study period. Our study results reveal that before asset creation, 37 households cultivated different crops namely mulberry (12 households), ragi (six households), areca-nut (four households), jowar (4 households), coconut (two households), maize (two households), paddy (two households), sugarcane (two households) and wheat (one household). All 37 households' total cultivated land was 68 acres and their (37 households) income earned was ₹13,50,950. All the households were benefited by irrigation facilities from MGNREGA during our study period. After this benefit, their total land cultivation increased by 4.25 acres overall. The land increased in BC category households, and mulberry crop was cultivated in increased land. Sugarcane was cultivated in one acre of land that belongs to a BC

category farmer. In a similar way, 0.50 acres increased in the cultivation of areca nut and the cultivators belonged to BC category. The value of crop increased in almost all crops. For a few crops, the total value increased a little and they are: mulberry, sugarcane, areca nut and paddy (Table 6). The production was considerably increased, and due to this reason, the value of the crop increased significantly.

Table 8: Land and Income Increased Due to Individual Assets Creation in Irrigation Facilities under MGNREGA

Pre/Post Asset	Sl. No	Name of the Crop	Number of Respondents/ HHs Reported and Social Group					Extent (in acres)	Total value of the crop (₹)
			SC	ST	BC	OC	Total		
Pre asset Information	1	Areca nut	2(2)*	1(1.5)*	1(0.5)*	0(0)*	4(4)*	4(1.00)**	126000(31500)***
	2	Coconut	0(0)	0(0)	2(6)	0(0)	2(6)	6(3.00)	123000(20500)
	3	Green gram	0(0)	0(0)	1(2)	0(0)	1(2)	2(2.00)	18000(9000)
	4	Jowar	1(1)	0(0)	1(1)	2(6)	4(8)	8(2.00)	37800(4725)
	5	Maize	0(0)	0(0)	2(2.5)	0(0)	2(2.5)	2.5(1.25)	14700(5880)
	6	Mulberry	0(0)	0(0)	12(24)	0(0)	12(24)	24(2.00)	564050(23502)
	7	Paddy	0(0)	2(7)	0(0)	0(0)	2(7)	7(3.50)	66000(9429)
	8	Ragi	0(0)	1(1)	5(6.5)	0(0)	6(7.5)	7.5(1.25)	55800(7440)
	9	Red gram	0(0)	0(0)	1(2)	0(0)	1(2)	2(2.00)	21600(10800)
	10	Sugarcane	0(0)	0(0)	2(2)	0(0)	2(2)	2(1.00)	294000(147000)
	11	Wheat	0(0)	0(0)	0(0)	1(3)	1(3)	3(3.00)	30000(10000)
	Total		3(3)	4(9.5)	27(46.5)	3(9)	37(68)	68(1.84)	1350950 (19867)
Post asset Information	1	Areca nut	2(2)	1(1.5)	1(0.75)	0(0)	4(4.25)	4.25(1.1)	384000(90353)
	2	Coconut	0(0)	0(0)	2(6)	0(0)	2(6)	6(3.00)	163200(27200)
	3	Green gram	0(0)	0(0)	1(2)	0(0)	1(2)	2(2.00)	32000(16000)
	4	Jowar	1(1)	0(0)	1(1)	2(6)	4(8)	8(2.00)	58800(7350)
	5	Maize	0(0)	0(0)	2(2.5)	0(0)	2(2.5)	2.5(1.25)	21600 (8640)
	6	Mulberry	0(0)	0(0)	12(27)	0(0)	12(27)	27(2.25)	836800(30993)
	7	Paddy	0(0)	2(7)	0(0)	0(0)	2(7)	7(3.50)	106400(15200)
	8	Ragi	0(0)	1(1)	5(6.5)	0(0)	6(7.5)	7.5(1.25)	79500(10600)
	9	Red gram	0(0)	0(0)	1(2)	0(0)	1(2)	2(2.00)	24000(12000)
	10	Sugarcane	0(0)	0(0)	2(3)	0(0)	2(3)	3(1.50)	512500 (170833)
	11	Wheat	0(0)	0(0)	0(0)	1(3)	1(3)	3(3.00)	50000(16667)
	Total		3(3)	4(9.5)	27(50.7)	3(9)	37(72.2)	72.25(1.95)	2268800(31402)

Notes: * Indicates the total land; ** indicates the average land; ***Indicates the average income.
Source: Primary data collected 2018.

Land Development Facility for Individual Assets Creation under MGNREGA

Rao (2014) has stated that the beneficiary farmers were confidently overcoming poverty through multiple sources of MGNREGA project. Our study shows some of the farmers were benefited through the land development programme under MGNREGA. Before being benefited by MGNREGA land development activity, a total of eight households cultivated different crops namely: Horse gram (two households) followed by ragi (two households), areca-nut (one household), coconut (one household), paddy (one household) and sugarcane (one household). The total eight households' land was 12 acres. After being benefited by land development facility from MGNREGA, the same eight farmers cultivated the same crops, but they extended 1.5 acres of land. The extended 0.5 acres of land was cultivated with horse gram and the farmer belongs to BC category. In the same way, 0.5 acres were increased for ragi and sugarcane (0.5 acre) farmers and the farmers belong to BC category (Table 9). The study observed that BC category households were benefited more as compared to other social groups.

Table 9: Cultivation of Land Increased Due to Land Development Facility under MGNREGA

Pre/Post asset	Sl. No.	Name of the Crop	Number of Respondents/ HHs Reported and Social Group				Extent (in acres)
			ST	BC	OC	Total	
Pre asset	1	Areca nut	1(2.1)*	0(0)*	0(0)*	1(2.1)*	2.1(2.10)**
	2	Coconut	0(0)	1(1)	0(0)	1(1)	1(1)
	3	Horse gram	0(0)	2(1)	0(0)	2(1)	1(0.5)
	4	Paddy	0(0)	1(2)	0(0)	1(2)	2(2)
	5	Ragi	0(0)	1(1)	1(4)	2(5)	5(2.5)
	6	Sugarcane	0(0)	1(1)	0(0)	1(1)	1(1)
		Total	1(2.1)	6(6)	1(4)	8(12.1)	12.1(1.51)
Post asset	1	Areca nut	1(2.1)	0(0)	0(0)	1(2.1)	2.1(2.1)
	2	Coconut	0(0)	1(1)	0(0)	1(1)	1(1)
	3	Horse gram	0(0)	2(1.5)	0(0)	2(1.5)	1.5(0.75)
	4	Paddy	0(0)	1(2)	0(0)	1(2)	2(2)
	5	Ragi	0(0)	1(1.5)	1(4)	2(5.5)	5.5(2.75)
	6	Sugarcane	0(0)	1(1.5)	0(0)	1(1.5)	1.5(1.5)
		Total	1(2.1)	6(7.5)	1(4)	8(13.6)	13.6(1.7)

Notes: * Indicates total land; **Average land.
Source: Primary data collected, 2018.

Horticulture and Sericulture Individual Assets Creation under MGNREGA

The study's sample households did not benefit from fisheries related activities. Out of the total sample households, only 15 households benefited from horticulture assets creation; social group wise details are presented in Table 10. The SC and ST did not get benefit under horticulture component and it indicated that they may not be aware of the information about horticulture. The sericulture assets were created in Ramanagara district. According to Gupta (2013) sericulture is high employment and low capital intensive. This is the most labour-friendly and socio-economic improvement sector. India is one of the biggest raw material customers in this field in the global market. Most of the sericulture sector workers in Karnataka are women. The Ramanagara cocoon market is the biggest market in Karnataka. The main findings of the study were: The number of female workers who worked in the households, access of technology, and number of man hours created have an impact on employment generation. Our study data covered Herindyapanahalli GP, where mulberry crop is cultivated under sericulture. Thus the silk market was located in Ramanagara district and this is the biggest silk market in Karnataka. According to Krishna kumare, *et. al.* (2017) Karnataka produced more silk than any other state in India. The main findings of the study are: The cultivated area in Karnataka increased from 1,77,943 hectares in 2008-2009 to 2,08,947 hectares in 2015-2016. In addition to that, the production of silk Compound Annual Growth Rate (CAGR) had increased by four per cent from 2003-2004 to 2014-2015. In our study, five horticulture households also benefited from MGNREGA. After asset creation, their total annual income increased from ₹2,08,000 to ₹2,75,500. The BC average income was ₹8,750 and followed by OC category (₹40,500) (Table 10). The sericulture farmers were benefited but the details were not available at the time of our investigation.

Table 10: Horticulture Asset Benefited Sample Households in Karnataka

Name of the crop	Pre/Post Asset Creation	Name of the Social Group			
		SC	BC	OC	Total
Horticulture	No. of HHs reported	0	4	1	5
	Pre-asset creation	0	180000(45000)	28000(28000)	208000(41600)
	Post-asset creation	0	235000(58750)	40500(40500)	275500(55100)
Sericulture	Total HHs reported	1(6.7)	11(73.3)	3(20.0)	15(100)

Source: Primary data collected, 2018.

Conclusions

The government of India has provided for the creation of various durable assets under MGNREGA scheme in India. The created assets were very useful to the farmers to extend their land and improve their agriculture production. The main

findings of our study are: Nearly 45 per cent of the farmers benefited by assets creation during our study. Among the social groups, assets creation was more in the OC community. The study observed that OC households were having more land due to this reason they benefited more assets as compared to SC, ST and BC households.

Our study identified total 33 assets created in 2014-2015. Among them, the construction of livestock shelters was the highest. The assets creation increased during 2015-2016 as compared to 2014-2015. In the mentioned year (2015-2016), 79 households benefited from assets creation. Among the households, BCs benefited more. A majority of the rural households benefited in 2016-2017. The study examined how many farmers cultivated a particular crop in the pre- and post-asset creation period and many acres were cultivated in post-asset creation. The total land cultivation increased by 4.25 acres. It indicates the cultivation of land increased. All crops value was increased. Through land development, individual asset creation was extended by 1.5 acres of land during our study period. The total households that benefited from livestock shelters were 113.A small number of households benefited from horticulture asset creation and sericulture under the MGNREGA scheme. According to our study, a majority of them constructed livestock shelters and benefited at different levels.

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Financial Conditions of Elderly People in Different Regions of India

Antara Dhar

Increasing informalisation, nuclearisation of family, inadequate social security for the aged, rising health care cost in many countries imposes some challenges before the elderly people like those in India. In today's world 60+populations are participating in the labour market. In this paper, I have examined the financial conditions of the elderly people in India. In particular, I have focused on the daily real earnings of the elderly people in India in recent years across six different geographical zones. Presence of discrimination that the elderly people are facing in the labour market has also been analysed here. For the purpose of analysis, NSS 68ᵗʰ round (2011-2012) data have been used. Bivariate analysis confirms that North-East Indian 60+populations earn more than their counter parts in all others regions. A negative relation between the daily average real earning and age of the elderly has been noticed in all the geographical zones except the above 75 years for the North-East Indian elderly. Across education level, the elderly who have secondary level of education and above, earn more than primary educated elderly in almost all the zones. Socio-religious identity of the aged depicts that in most of the zones the Muslim elderly earn more that the Hindu upper caste elderly in 2011-2012. Although the North-East Indian elderly are getting highest earnings compared to others but in the labour market they are facing highest discrimination in recent years.

I Introduction

Declining fertility and mortality has changed the age structure of the population in the world.

Ageing of population, i.e., the proportion of aged in the total population increases owing to the reduction of fertility and mortality. During the 1950s, the world population aged 60 years and above was 205 million (8.2 per cent of the population) which increased to 606 million (10 per cent of the population) in 2000 (Raju 2011). Population projection indicates that the elderly population in the world will grow from 542 million (9.5 per cent of world population) in 1995 to 1.9 billion (20.7 per cent of world population) in 2050 and further to 3.3

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billion (30.5 per cent of world population) in 2150 (Rajan, *et. al.* 2008). United Nations (2009) predicts that 60+ populations will grow from an estimated 737 million older persons in 2009 to 2 billion by 2050, at which time the elderly population will outnumber children aged 0-14 years (United Nations 2009). Developing countries are experiencing the ageing of population in recent years unlike developed countries. According to United Nations (2005), in the more developed regions, elderly population is expected to increase from 20.2 per cent in 2005 to 27.5 per cent in 2025 and to 32.4 per cent in 2050. In less developed regions, proportion of aged people will increase from 8.2 per cent to 12.8 and again to 20 per cent during the same time period. In the least developed regions, the proportion of aged will be only 9.9 per cent by 2050 (United Nations 2005). In 1990, the 60 years and above population in the developing countries exceeded that of the developed countries (Rajan, *et. al.* 2008) and in 2009, two-third of the world's elderly people lived in developing countries (Subaiya and Bansod 2011). The projection shows that between 2006 and 2030, the increasing numbers of older people in less developed countries are expected to increase by 140 per cent as compared to an increase of 51 per cent in the more developed countries (Krug 2002). In 2050, 82 per cent of the world's elderly will be living in the developing regions of Asia, Africa, Latin America and the Caribbean, while only 16 per cent of them will reside in the developed regions of Europe and North America (Raju 2011). UN projections indicate that most of the 80+ people are currently living in developed regions, but soon majority will be living in the less developed regions. So, by 2050, more than 70 per cent of the above 80 populations is expected to be living in the less developed regions. Another important fact is that although the proportion of people living beyond the age of 100 is very small, this number is also growing rapidly (United Nations 2002).

Ageing of population imposes many challenges to the society, related to social security, health service, crisis in caring for the elderly, etc. Most of the developing countries do not have social security for the aged. Now-a-days, the 60+ populations, not only in developing countries but also in developed countries, are participating in the labour market and rely on their own income. In a country like India, where 60+ population is increasing[1] very rapidly from 2001 onwards with respect to total population, the ageing of population is a big concern for the policy maker. Some social security benefits are available for the elderly in India such as – Integrated Programme for Older Persons(IPOP), National Programme for the Health Care for the Elderly (NPHCE), National Old Age Pension Scheme, etc. Many authors have claimed that the coverage of this social security is inadequate. In the absence of such benefit, many elderly people in India are participating in the labour market. In this paper, I want to analyse the earnings of the 60+ populations in India in recent years. Here, I have disaggregated the whole analysis into six different geographical zones.

II Literature Review

There are different sources of income of the elderly people such as income from government as social security benefit, income from labour market participation, income from relatives, etc. In some countries social security is the main source of income for the 60+ populations such as in Japan (Murozumi and Shikata 2008). However, in UK, Denmark, USA and also in Japan we can see other sources too, such as social insurance benefit, private occupational income, market income, etc. Going through the literature, it has been noticed that the earnings of the elderly originated from current economic activities differ among the pensioners and non-pensioners, e.g., in Bangladesh 8 to 12 per cent of the total income of the pensioners comes from economic activities where as for the non- pensioners, the figure is about 58 per cent of their income (Mahmood, *et. al.* 2008). If the retirement benefits are not sufficient, elderly people depend on other sources of income, such as in Sri Lanka (Rerera, *et. al.* 2008). However, in the countries where early retirement benefits are lucrative, elderly people are not interested to re-join the labour market after their retirement (Auer and Fortuny 2000). In many countries we can observe inverse 'U' shape relation between wage and age of the elderly (Leslie, *et. al.* 2009, Gelderblom 2005). In Japan after retirement elderly people join labour market at a lower wage (Auer and Fortuny 2000). According to Becker (1964) the rate of earnings increase with age might be positively related to the level of skill.

In the context of the financial conditions of 60+ populations in India, we can see a few studies have focused on earnings of elderly people. Selvaraj, *et. al.* (2011) illustrate trends in real daily earnings of elderly workers using National Sample Survey Office (NSSO) data. They have pointed out that nominal wages and real wages of regular and casual elderly workers have increased from 1983 to 2005. According to Selvaraj, *et. al.* (2011) although elderly workers receive lower wages, compared to the non-elderly (15 to 59 years) in 2004-2005, they contribute significantly to household income (about four to five per cent on average to the total household income). UNFPA (2012) study has also analysed the earnings of the elderly but this study is based only on seven states in India and mentioned that overall 74 per cent elderly men and 41 per cent elderly women receive some personal income. Among the elderly, 43 per cent receive no income, 22 per cent elderly receive less than ₹12000, 21 per cent are getting between ₹12000 and ₹50000 and around 14 per cent receive more than ₹50,000 per annum (UNFPA 2012). The same study revealed that mean income is lowest in Tamil Nadu and highest in Himachal Pradesh.

The study of Selvaraj, *et. al.* (2011) and UNFPA (2012) although focused on the earnings of elderly has some limitations that we can observe, such as Selvaraj, *et. al.* (2011) did not consider the earnings of the elderly across level of education and expenditure classes; UNFPA (2012) study is based only on seven states in India. However, analysis of earnings of the 60 + populations across

different geographical zones helps us to analyse and compare the financial conditions of the elderly people in different regions of India.

In this paper, I want to examine the financial conditions of the elderly people in India in terms of daily average real earnings in different regions in recent years. Also, here I would like to focus on the discrimination of the elderly in the labour market in recent years in different zones.

III Data Base and Methodology

Data Base

In this paper, National Sample Survey (NSS) Organization's unit level data on Employment and unemployment in India has been used, in particular this study uses NSS 68th round (2011-2012) data on Employment and unemployment situation in India. In the 68th round[2], data was collected for 4,56,976 individuals, among which there were 38,027 individuals aged 60 years and above. For the purpose of analysis some variables had been constructed from the unit level data of NSS such as geographical zone, education level, socio-religious identity, monthly per capita expenditure, etc. In order to examine earnings of elderly, I have considered six geographical zones —North (Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Chandigarh, Delhi, etc.), Central (Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, etc.), West (Goa, Gujarat, Maharashtra, Dadra and Nagar Haveli, Daman and Diu, etc.), East (Orissa, West Bengal, Assam, Tripura, etc.), North-East (Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, etc.) and South (Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Andaman and Nicobar, Lakshadweep, Pondicherry etc.). Educational level of the elderly has been categorised as illiterate, below primary educated, primary educated, middle educated, secondary educated, higher secondary (HS) educated and above HS educated. Below primary education level also includes informal education. Socio-religious identity of the people is categorised as — Muslim, Hindu Upper Caste (HUC), Hindu Schedule Caste (HSC), Hindu Schedule Tribes (HST), Hindu Other Backward caste (HOBC), and other caste (Others) etc. NSS data (Schedule 10, section 9) also provides information of total monthly consumer expenditure. In this paper, I have considered quintile division of monthly per capita expenditure for the purpose of analysis.

Table 1 depicts percentage of the elderly populations in India in 2011-2012 across six different geographical zones. The highest percentage of elderly people has been found in Central India followed by South India in the 68th round of NSS. However, lowest proportion of elderly has been observed in the North-East India.

Table 1: 60+ Populations in India in 2011-12 (per cent)

Geographical zone	60+ populations
North	12.74
Central	30.41
West	13.47
East	14.26
North-East	4.61
South	24.51

Source: Calculated from NSS 68th round data.

Econometric Analysis

Some of the important determinants of earnings of elderly people in different regions of India has been considered here, such as age, education level, socio-religious identity, occupational category, state level unemployment etc. In order to examine the effects of explanatory variables on the earnings of 60+ workers, I have considered the following model:

$$LE = \alpha + \beta_1 \text{ AGE} + \beta_2 \text{ ILLITERATE} + \beta_3 \text{ BPRIMARY} + \beta_4 \text{ MIDDLE} + \beta_5 \text{ SECONDARY} + \beta_6 \text{ HS} + \beta_7 \text{ ABOVE HS} + \beta_8 \text{ MUSLIM} + \beta_9 \text{ HSC} + \beta_{10} \text{ HST} + \beta_{11} \text{ HOBC} + \beta_{12} \text{ HOTHERS} + \beta_{13} \text{ SJOBS} + \beta_{14} \text{ CLERK} + \beta_{15} \text{ CRAFT} + \beta_{16} \text{ UNEMP}$$

…(1)

where
LE = Log of daily earnings of the respondent
AGE = Age of the respondent (here for the purpose of analysis age of the respondent has been subcategorised as - 60-65 years, 66-75 years and above 75 years)

ILLITERATE = 1 if the respondent is illiterate; = 0 otherwise
BPRIMARY = 1 if the respondent has below primary level of education; = 0 otherwise
MIDDLE = 1 if the respondent has middle level of education; = 0 otherwise
SECONDARY = 1 if the respondent has secondary level of education; = 0 otherwise
HS = 1 if the respondent has higher secondary level of education; = 0 otherwise
ABOVEHS = 1 if the respondent has above higher secondary level of education, =0 otherwise
(PRIMARY, i.e., respondent has primary level of education, is taken as reference category)
MUSLIM = 1 if the respondent is a Muslim; = 0 otherwise
HSC = 1 if the respondent is a Hindu schedule caste; = 0 otherwise
HST = 1 if the respondent is a Hindu schedule tribes; = 0 otherwise

HOTHERS = 1 if the respondent belongs to all others socio-religious identity, = 0 otherwise

(HUC, i.e. Hindu forward castes, is the reference category)

UNEMP = State level unemployment calculated for rural/urban areas and by gender

Dummies representing occupational categories based on the National Classification of Occupation:

SJOBS = 1 if the respondent engaged in managerial, administrative and professional occupations; = 0 otherwise

CLERK = 1 if the respondent engaged in clerical jobs; = 0 otherwise

CRAFT = 1 if the respondent engaged in craft and manufacturing jobs; = 0 otherwise

(PRIMARY SECTOR, i.e., the respondent engaged in primary sector jobs, is the reference category)

According to Heckman (1979), if I use ordinary least square method here without addressing the incidental truncation[3] of the data set, it will lead to biased estimates of the parameters. With respect to the elderly people, it is clear that if the market wage is higher than the reservation wage and if they have a compulsion, they will participate in the labour market. So, the data here is not random and besides, we are dealing with the truncated data set, as in the NSS data, the information on the earnings of informal sector workers is missing. So, to find out the effects of several variables, on the daily earnings of the elderly in six different geographical regions of India and at the same time to address sample selection problem, I have focused on the Heckman's Sample selection model. Following the Heckman's sample selection model here I have considered two equations.

In one equation outcome variable and its determinants are considered and in other equation, i.e., in selection equation, a portion of the sample whose outcome is observed and the mechanism determining the selection process is considered. In the context of earnings of elderly workers, the regression equation and selection equation are given below:

Regression equation:

$LE = \alpha + \beta_1 \, AGE + \beta_2 \, ILLITERATE + \beta_3 \, BPRIMARY + \beta_4 \, MIDDLE + \beta_5 \, SECONDARY + \beta_6 \, HS + \beta_7 \, ABOVE \, HS + \beta_8 \, MUSLIM + \beta_9 \, HSC + \beta_{10} \, HST + \beta_{11} \, HOBC + \beta_{12} \, HOTHERS + \beta_{13} \, SJOBS + \beta_{14} \, CLERK + \beta_{15} \, CRAFT + \beta_{16} \, UNEMP$

…(2)

Selection equation:

WFORCE = α + β_1 AGE + β_2 ILLITERATE + β_3 BPRIMARY + β_4 MIDDLE + β_5 SECONDARY +β_6 HS + β_7 ABOVEHS + β_8 MUSLIM + β_9 HSC + β_{10} HST + β_{11} HOBC + β_{12} HOTHERS + β_{13} UNEMP + β_{14} DEPENDENT

$$\ldots(3)$$

Where,
DEPENDENT= Number of non-aged non-working members
Other variables are the same as previous equation (equation 1).

IV Results and Discussions

Table 2 depicts the daily average real earnings of the elderly in six different zones of India in 2011-2012. The highest earnings have been observed among the North-East Indian aged in the 68th round of NSS, followed by North Indian aged people and the least earnings are observed among the East Indian elderly. Except the North-East Indian elderly, in all other regions, average earnings of 60+ populations are not even ₹100 per day.

Table 2: Daily Average Real Earnings of the Elderly in Different Regions of India in the 68th Round of NSS (₹)

Geographical zone	Earnings
North	94.59
Central	70.27
West	89.59
East	65.46
North-East	147.63
South	77.98

Source: Calculated from NSS 68th round data.

In the next part, I am going to analyse the earnings of the 60+ populations in six different zones of India across educational attainment of the elderly and also with respect to monthly per capita expenditure of the aged.

Table 3: Daily Average Real Earnings of the Elderly in Different Regions of India across Education Level in the 68th round of NSS (₹)

Education level	Geographical zone					
	North	Central	West	East	North-East	South
Illiterate	50.35	44.53	42.05	38.50	80.69	43.16
Informal/Below primary	53.52	55.73	51.85	43.49	238.77	62.96
Primary completed	51.29	62.86	55.55	57.68	84.49	69.10
Middle completed	78.63	58.76	52.71	63.01	130.86	54.76
Secondary completed	101.51	65.16	135.07	36.63	158.03	130.21
HS completed	112.71	183.14	77.87	81.09	161.39	97.90
Above HS	281.28	190.29	213.33	182.00	372.47	175.85

Source: Calculated from NSS 68th round of NSS.

From the above table it is evident that except the North-East Indian elderly, in all other regions, daily average real earnings are almost same among the illiterate, below primary educated, primary educated and among the middle educated aged persons. From the secondary education level onwards, the variations in the daily average real earnings has been noticed across different regions. The elderly who live in North-East India, earn more than their counter parts in other regions of India. However, only in case of higher secondary educated, the Central Indian aged earns more than the North-East Indian elderly. Among the secondary educated, the least earnings have been found among the elderly who live in East India. The higher secondary completed West Indian elderly earn less than the elderly in other regions of India. The above-higher secondary educated South Indian elderly earn less than the aged people in other regions. In all the regions the aged people who are above higher secondary educated, earn more than the others. Another important factor that determines the earnings of the elderly is their monthly expenditure. Table 4 illustrates the association between the daily average real earnings and monthly per capita expenditure of the elderly in different regions of India. Considering all the regions across expenditure level, the highest earnings has been observed among the richest expenditure group. In the regions like North, Central, North-East the elderly who belongs to the rich expenditure group have lower daily average earnings compared to the middle expenditure group. Comparing the regions, it has been found that North-East Indian elderly earn more than the elderly in other regions of the country, considering all the expenditure levels. Among the poorest and middle expenditure group, East Indian elderly earns much less than the others. However, in case of poor expenditure group, the South Indian elderly have the least daily average real earnings. In case of rich and richest expenditure group, the least earnings have been observed among the Central and South Indian elderly respectively in 2011-2012.

Table 4: Daily Average Real Earnings of the Elderly in Different Regions of India across Monthly Per capita Expenditure Level in the 68th Round of NSS

Expenditure level	Geographical zone					
	North	Central	West	East	North-East	South
Poorest	59.22	58.40	47.19	26.37	66.93	41.14
Poor	57.09	55.66	51.45	51.98	91.97	39.77
Middle	87.25	73.05	60.07	37.64	175.10	85.81
Rich	57.27	55.24	66.61	56.30	158.25	90.92
Richest	150.00	118.74	120.68	166.22	260.97	97.52

Source: Calculated from NSS 68th round data.

After analysing the earnings of the elderly, considering quintile division of monthly their per capita expenditure, in the next part I am going to examine the earnings of the elderly across different socio-economic category in six different geographical zones.

Table 5: Daily Average Real Earnings of the Elderly in Different Regions of India across Different Socio-Religious Group in the 68th Round of NSS (₹)

Socio-religious identity	Geographical Zone					
	North	Central	West	East	North-East	South
HUC	152.57	93.18	143.29	63.01	167.11	115.54
HST	79.59	53.23	55.42	44.48	-	152.40
HSC	56.51	42.83	23.02	60.24	118.77	52.22
HOBC	57.33	62.00	47.21	47.52	377.40	63.15
Muslims	153.96	62.35	67.95	77.01	388.72	77.39
Others	57.20	268.11	64.68	218.29	120.27	84.69

Source: Calculated from NSS 68th round data.

Table 5 illustrates that in North India, the Hindu Upper Caste and Muslim elderly have almost the same daily average real earnings in 2011-2012 and their earnings are higher compared to the other socio religious groups. In North India, the daily average real earnings of Hindu Schedule Caste is lower compared to the others in the 68th round of NSS. The elderly who belong to the Other socio-religious category earn more than the others in Central and East India in 2011-2012. The earnings of Hindu Schedule Caste and Schedule Tribes are less compared to the others in Central and East India respectively in 2011-2012. Hindu Upper Caste elderly in West India earns more than the other socio-religious groups in the 68th round of NSS and lowest mean daily earnings have been found among the Hindu Schedule Caste. In North-East India, aged Muslims have the highest daily earnings. However, Hindu Scheduled Castes are getting lowest earnings in North-East zone. In South India, Hindu Schedule Tribes are experiencing highest earnings in the 68th round of NSS.

In the next part, I want to focus on the multivariate analysis. The results of econometric analysis (Table 6) depicts that the elderly 60-65 years   get higher earnings compared to the middle aged elderly (66-75 years) in all the six geographical zones of India. However, the above 75 years elderly in East and North- East India are getting significantly higher earnings compared to the 66-75 years category of elderly. In all other zones, those above 75 years are getting lower earnings in 2011-2012. Level of education of the elderly in six different zones of India illustrates, as expected, that in all the regions the illiterate elderly are getting lower earnings compared to the primary educated elderly in 2011-2012. Among the below primary educated elderly, ironically only the Central Indian and North-East Indian are getting higher daily earnings compared to the primary educated elderly in the 68th round of NSS. The middle educated elderly almost in all the zones (except the middle educated elderly in South India) and the elderly having secondary level of education in six geographical zones are getting higher earnings compared to the primary educated elderly in recent years. The higher secondary and above higher secondary educated elderly in all the zones get higher earnings compared to the primary educated elderly (except higher secondary educated elderly in West India). Table 6 also depicts that Muslim elderly people are getting higher daily earnings compared to the Hindu upper caste elderly in most of the zones in recent years. The North, Central and West Indian Hindu Schedule Caste elderly are getting lower earnings compared to the Hindu upper caste, however, we can observe opposite results among the East, North-East and South Indian Hindu Schedule Caste elderly. Except the Hindu Schedule Tribes in Central and West India, in most of the zones the Schedule Tribes, the elderly have higher earnings compared to the Hindu Upper caste in the 68th round of NSS. The elderly who belong to Other Backward Caste are getting higher earnings compared to the Hindu Upper Caste elderly in Central, East and North-East India in 2011-2012.

Occupational category of the elderly shows that only in Central and West India, the elderly who are in superior jobs are getting significantly higher daily earnings compared to the primary sector jobs. In North India, the elderly who are in clerical jobs or craft and manufacturing, are getting lower daily earnings compared to the primary sector jobs. However, in Central India we can observe the opposite scenario. In West India, the elderly in the primary sector are earning higher than their counterpart in clerical, craft and manufacturing sector in 2011-2012. The East and South Indian aged people who are in primary sector are getting higher earnings compared to clerical jobs, craft and manufacturing jobs. In North –east India, we can see almost the same result as in the East and South India but the exception is the elderly who are in clerical jobs. Table 6 also illustrates, that with the increase in state level unemployment, the earnings of the 60+ populations decrease in all the geographical zones of India, except South India in the 68th round of NSS.

Table 6: Effects of Predictor Variables on the Daily Earnings of Elderly Workers in Six Different Geographical Zones of India in 2011-2012

Variables	NORTH	CENTRAL	WEST	EAST	NEAST	SOUTH
Age groups (Ref. Cat. 66-75 YEARS ELDERLY)						
60-65 YEARS	0.16	0.81	0.22	0.57	0.31	0.05
ABOVE 75 YEARS	-0.76	-1.23	-1.89	0.06	1.05	-1.08
Education level (Ref. Cat. PRIMARY)						
ILLITERATE	-0.12	-0.37	-0.48	-0.58	-0.64	-0.60
BPRIMARY	-0.08	0.15	-0.29	-0.32	0.43	-0.04
MIDDLE	0.57	0.46	0.09	0.41	0.08	-0.15
SECONDARY	0.48	0.28	0.30	0.35	0.004	0.70
HS	0.74	0.17	-0.71	1.15	1.09	0.36
ABOVE HS	1.59	0.86	0.41	1.23	1.75	0.31
Socio-religious identity (Ref. Cat. HINDU UPPER CASTE)						-0.0001
MUSLIM	0.13	0.11	-0.27	0.56	1.14	
HSC	-0.05	-0.11	-0.96	0.59	0.49	0.04
HST	0.45	-0.07	-0.08	0.36	-	0.87
HOBC	-0.11	0.02	-0.16	0.21	0.73	-0.06
HOTHERS	-0.16	1.67	0.66	1.14	0.27	0.16
Occupation (Ref: Cat. PRIMARY SECTOR)						
SJOBS	-0.04	0.31	0.67	-0.46	-0.63	-0.02
CLERK	-0.91	0.16	-0.71	-0.59	0.25	-0.79
CRAFT	-0.27	0.26	-0.13	-0.18	-0.22	-0.62
UNEMP	-12.43	-17.30	-5.50	-5.85	-5.86	0.51
INTERCEPT	4.24	2.68	2.32	3.13	3.09	4.40
Selection model						
Age groups (Ref. Cat. 66-75 YEARS ELDERLY)						
60-65 YEARS	0.66	0.35	0.50	0.50	0.76	0.34
ABOVE 75 YEARS	-0.75	-1.38	-0.73	-0.84	-0.53	-0.47
DEPENDENT	-0.25	-0.13	-0.13	-0.25	-0.15	-0.32
Control variables	YES	YES	YES	YES	YES	YES
Lambda	0.134538	0.3201065	0.874667	0.270763	0.65833	0.07502
Wald chi^2	259404.1	273135.67	268289.6	206544.9	10287.52	504703.5
Total observation	5070140	1.95E+07	1.03E+07	9212432	223502	1.59E+07
Uncensored observation	205938	568946	279929	220615	9491	623679

Notes: ***All the variables are significant at one per cent level (except the secondary educated North-East elderly).

Source: Calculated from NSS 68th round data.

In the next part, I want to focus on the exploitation that the elderly people in India are facing in different geographical zones. Here, I will consider the earnings of elderly and near-elderly people (50-59 years). Table 7 depicts the daily average real earnings of elderly and near elderly people in different

geographical zones of India in 2011-2012. From the results we can observe significant earnings gap between elderly and near- elderly people in six different geographical zones. The earnings of the elderly people are very low compared to the near elderly people in all the regions of India in 2011-2012.

Table 7: Daily Average Real Earnings of Elderly and Near Elderly People in Six Different Geographical Zones of India in the 68th Round of NSS (₹)

Geographical zone	Real earnings (₹)	
	Near aged	Aged
North	248	95
Central	215	70
West	178	90
East	189	65
North-East	256	148
South	160	78

Source: Calculated from NSS 68th round data.

Now, these gaps in earnings between the above mentioned groups can be explained in terms of differences in education, other socio-economic variables etc. However, using Oaxaca and Blinder (1973) decomposition here, I want to examine whether there is any unexplained component of earnings gap that exits or not, between these two groups of people. Actually the unexplained component of earnings gap indicates the existence of discrimination in the market against the elderly people. Table 8 explains the discrimination that the elderly people in India are facing in 2011-2012 compared to near elderly people in different regions. It has been observed that in all the geographical zones the elderly people in India are facing discrimination in the labour market compared to the near elderly people in recent years. However, the highest discrimination has been observed among the North-East Indian elderly followed by Central Indian elderly in the 2011-2012. The South Indian elderly people are better off as they are facing lowest discrimination in the labour market in the 68th round of NSS.

Table 8: Unexplained Component of Wage Gap

Geographical zone	Residual effect (%)
North	138
Central	456
West	412
East	265
North-East	514
South	100

Source: Calculated from NSS 68th round data.

V Conclusion

On analysing the earnings of the 60+ populations in recent years in different geographical regions of India, it has been observed that the North-East Indian elderly people are better off in terms of daily average real earnings compared to their counter parts in all other regions. Examination of earnings across educational attainment of the elderly population in India confirms no significant variations in earnings among the elderly who have a below secondary level of education across different geographical zones. Among the secondary and above higher secondary educated, the North-east Indian aged people are getting highest earnings in 2011-2012. However, daily average earnings of higher secondary completed Central Indian elderly are much higher than the others (who have completed higher secondary) in all other regions of India in the 68th round of NSS. From the analysis of monthly per capita expenditure, it is clear that North-East Indian elderly earns more than the others irrespective of expenditure level in 2011-2012. Among the rich expenditure groups, least earnings have been noticed among the Central and South Indian elderly in the 68th round of NSS.

Multivariate analysis explains that with the increase in age, earnings of the elderly decreases in all the regions of India in the 68th round of NSS. Only exceptions are East and North-East Indian above 75 years elderly because their earnings are higher than the 66-75 years aged people in India in 2011-2012. An inverse relation between state level unemployment and daily average real earnings of the elderly has been observed in India in most of the regions in the 68th round of NSS. Education level, as expected, confirms that almost in all the zones, secondary, higher secondary and above higher secondary, the educated 60+ populations are getting significantly higher daily earnings compared to the primary educated elderly in 2011-2012. Among different socio-religious group in India in the 68th round of NSS, Muslim elderly in almost all the zones, earns more than the Hindu Upper caste aged people. Hindu Schedule caste 60+ populations are better off than the Hindu Upper caste elderly in terms of daily average real earnings in 2011-2012. Except the Central and West Indian aged, among the Hindu Schedule tribes, the aged in all other regions we can observe similar results as in case of Hindu Schedule caste *viz-a-viz* Hindu Upper caste in the 68th round of NSS. In this paper, I have taken different occupational categories and the results depict that in most of the zones, the elderly who are in superior jobs, clerical jobs, craft and manufacturing jobs, earn significantly lower than the elderly who are in primary sector in India in the 68th round of NSS. A significant wage gap between the earnings of elderly and near elderly has been noticed in all the geographical zones of India in recent years. Following the Oxaca-Blinder decomposition, I have found that North-East Indian elderly people are facing the highest discrimination in the labour market in 2011-2012 followed by the Central Indian 60+ populations.

Summing up, I have observed that while the aged people in North-East India have the highest daily average real earnings in recent years they are also

facing the highest discrimination in the labour market. In most of the geographical regions, an inverse relation between age and daily average real earnings has been noticed. As expected the higher educated category earns more than the primary educated one in most of the zones. In the 68th round of NSS, the Muslims and Hindu Schedule Caste elderly people earn significantly more than the upper caste Hindu in most of the geographical zones of India. Another important finding is that almost in all the zones, the primary educated aged people earn significantly higher than the elderly who are in superior jobs, clerical, craft and manufacturing jobs in 2011-2012 in India.

Endnotes

1. In India, the elderly population exceeded the proportion of seven per cent of the total population in 2009 (Subaiya and Bansod 2011) and is expected to reach 12.6 per cent in 2025 (Prakash 1999). In 2050 it is projected to increase to 20 per cent (Subaiya and Bansod 2011).

2. The sampling design adopted for the NSS survey were essentially a stratified multi-stage one for both rural and urban areas. The survey used the interview method of data collection from a sample of randomly selected households. The first stage units (FSUs) were villages (panchayat wards for Kerala) for rural areas and NSSO Urban Frame Survey (UFS) blocks for urban areas. The ultimate stage units (USUs) were households.

3. Sample selection or incidental truncation refers to a sample that is not randomly selected.

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Caste and Enterprise Ownership: Emerging Trends and Diversification in India

Gautam Kumar

The caste system is the bedrock of Indian society. It confers rights and duties according to one's status in the hierarchy of the caste system. Historically, Scheduled Castes (SCs) and Scheduled Tribes (STs) have faced restrictions on access to productive assets such as land, capital, credit, business etc. SCs also faced discrimination and unfavourable exclusion in public spheres of life, leading to unemployment among SCs. The caste system has influenced employment opportunities for SCs. From this perspective, the paper explores the role of caste in enterprise ownership with respect to the recent economic census 2015-2016, NSS 73rd round 2015-2016 and analyses the determinants of diversification and growth.

Keywords: Caste, Discrimination, Affirmative action, Entrepreneurship, Diversification

Introduction

Caste is one of the most important characteristics of the Indian society. The caste system is a system of stratified social hierarchy (Bayly 1999). Caste determines the economic and social rights of an individual in society. "Caste System is not merely a division of labour; it is also a division of labourers" (Ambedkar 1990). The caste system segregates labourers and confines them within distinct categories, establishing a hierarchy where workers are ranked in a stacked manner.

Broadly, the caste system refers to the Varna and *Jati* systems. Historically, the Hindu society was divided into a four-tier caste system comprising Brahmins (priests), Kshatriyas (warriors, noble), Vaishyas (commoners, traders, agriculturists), and Shudras (servants) (Deshpande 2013). Brahmins came at the top of the hierarchy, and Shudras were considered to be at the bottom of the hierarchy. As per Hindu religious texts, the untouchables were excluded from the Varna system, resulting in their distinct treatment from the *savarnas* (Brahmins, Kshatriyas, Vaishyas, and Shudras). In the constitution of India, these untouchables are classified as Scheduled Castes (SCs).

Historically, caste or *Jati* is a localised system in which a community is associated with traditional occupations (Srinivas 2003). *Jatis* are ranked based on

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their Varna status. Hereditary and Endogamy are the two essential features perpetuating the caste system (Rodrigues 2019).

Caste gives economic opportunities and occupations to the people; it does not allow individuals to adjust to changing economic opportunities. Various occupations were designated for upper castes (also referred to as forward castes or *Swarnas*); on the other hand, some occupations considered polluted were assigned to certain castes considered lower castes/untouchables. SCs are clustered in the least-paid professions, such as casual labour, manual labour, sanitation, and leather-related work. The poverty rate among SCs and STs is significantly higher than other social groups (Strategy for New India @75, NITI Aayog 2018). SCs and STs have higher labour force participation rates and unemployment rates than other social groups. The periodic labour force survey 2021-2022 shows that more than one-third of casual labour belongs to SCs, more than three-fourths of sanitation workers are SCs; they have a disproportionately higher share in low-paying jobs but a meagre share in professional businesses and higher paying white-collar jobs except public sector (PLFS 2021-22).

Representation of all sections of society in public spaces, education, the health sector and the market is a pre-requisite for economic growth and inclusive development. If a large section of society remains outside the development process, it can generate resentment, harming growth (Deshpande 2013). To ensure the representation of marginalized sections such as SCs and STs, the Constitution of India has adopted a unique quota based affirmative action policy in the legislative assembly, public sector jobs and public-educational institutions.

The informal sector dominates the Indian economy, and more than 90 per cent of our labour force is engaged in the private sector, outside the purview of Reservation policies. Various studies (Deshpande and Newman 2007, Madheswaran and Attewell 2007, Thorat and Attewell 2007) show the extent of discrimination in the urban private sector. Multiple studies provide empirical evidence on unexplained wage differences partly caused by discrimination in the labour market (Madheswaran 2010, Thorat and Attewel 2007, Thorat, Madheswaran and Vani 2021). These studies established that social identity shaped outcomes in the labour market even when there is no difference in the endowments such as educational qualification and skills.

Entrepreneurship is another important sector which provides economic opportunities to people. It is generally assumed that markets are perfectly competitive, and there are no barriers to entry of firms (Neo-classical Economics). Firms can enter and exit irrespective of the identity of the owners of firms. By examining data related to the involvement of SCs and STs in owning enterprises, it becomes evident that inter-caste disparity exists, which highlights the impact of social identity on economic outcomes within the market. "Community, capital and credit—the three Cs—have played a major role in establishing community-based business houses in India. The principal formula of community-based businesses has been that the community comes together and creates capital. The capital is then distributed as credit within the community" (Mehrotra 2020).

This paper first presents a brief overview of existing literature in this area. Then it explores the participation of SCs in enterprise ownership, focusing on the recent NSS 73rd round 2015-2016 and the Sixth Economic Census 2015-2016. The paper examines the role of caste in enterprise ownership, growth and diversification and its explanation in the light of existing literature and theories of Economic Discrimination. The last section deals with policy implications.

I Why Group Inequalities Need to be Studied

Some historical examples of social mobility show that participation in the business sector and enterprise ownership played a significant role in social mobility. "Ownership of small businesses has been an important factor in the economic success and mobility of immigrant groups such as Chinese, Koreans, Jews, Italians in the United States, and ethnic minorities in England and Wales" (Clark and Drinkwater 2000). There are some prerequisites for that, such as equitable opportunity in factor markets, i.e., land, credit, commodities market: large numbers of these self-employment activities should have entrepreneurship tendencies rather than survival, etc. Analysis of the small businesses sector in India shows that SCs and STs have a disproportionately lower participation in business ownership, relative to their share in the population; SC and STs enterprises are concentrated in rural areas; these enterprises are survivalist in nature than entrepreneurial nature and these firms are smaller, with less share in workers employed.

II Caste as Social Capital

Social capital depicts the network of relationships among people who live and work in a particular society, interpersonal relationships, a sense of shared norms, shared identity, shared understanding, shared values, trust and cooperation. It comprises the value of tangible resources (private property, public spaces, etc.), intangible resources (human capital, managerial talent, etc.), and shared relationships within the group. It will lead to enhanced supply chain relations and improved performance of entrepreneurial firms. It can be categorized into sub-types, such as Bonded social capital (within homogeneous groups), Binding social capital (across heterogeneous groups), etc. A variety of research shows that social capital positively correlates with financial inclusion, group membership increases the probability of getting an informal loan and positively correlates with employment, etc.

Robert Putnam has shown how group members gain enormous benefits from social capital (Vaidyanathan 2019). He showed how trust based on social capital reduced risk and cost, thus encouraging enterprises and innovation, which led to the growth of these enterprises owned by a particular social group. Caste works as social capital in the sense that it acts as a network that provides information related to opportunities in the market, provides credit for business and acts as a risk

absorber. "In the case of traditional white-collar castes like Brahmins, it provides access to information on new areas of study to help in job opportunities; this could come from extended family networks and, in the current context, even the internet" (Vaidyanathan 2019)

III Brief Review of Literature

Goldar (1985,) Goldar (1988), Bhavani (1991) Tendulkar and Bhavani (1997) have studied the MSME sector to a great extent (Deshpande and Sharma 2016). There has been limited exploration of the MSME sector concerning India's social structure or from the perspective of marginalized groups like SCs, STs. These social groups work as social capital in the market, which is an essential determinant of the growth of enterprises. A national picture was generated regarding the share of marginalized sections in ownership of private firms under various rounds of national sample survey reports and economic census. But from the viewpoint of marginalized communities, their contribution to output and problems faced by these communities is ignored. Some studies, for instance, Vaidyanathan (2019), Thorat and Sadana (2009), Coad and Tamvada (2012), Iyer, *et. al.* (2013), Deshpande and Sharma (2013, 2016), Prakash (2018) have studied the share of SCs, STs in ownership of private enterprises at the national level, problems faced by these enterprises, the percentage of these enterprises in workforce employed, growth of these enterprises, etc.

Thorat and Sadana (2009) demonstrated the inter-caste disparity in ownership of private firms and the concentration of enterprises owned by marginal sections in rural areas. They argued that "Age-old restrictions on access to capital by certain social groups reflect themselves in the scheduled castes and scheduled tribes owning far fewer private enterprises than warranted by their share in population, in both rural and urban India". Data from the fifth Economic Census and NSS Consumption Survey 2011-2012 showed that poverty rates among the enterprises owned by marginalized sections are much higher than other social groups. They point out that a high concentration of household enterprises (Own account enterprises) that work only for subsistence is the leading cause of high poverty. By using various rounds of MSME censuses, Deshpande and Sharma (2013) showed that the share of SCs and STs-owned enterprises declined from 2001-2006; these enterprises are smaller in size, more concentrated in rural areas, the proportion of SC-ST employees is highest in SC-ST owned enterprises and lower in enterprises owned by other caste groups. In an extensive case study in Northwest India, Jodhka (2010) concluded that Dalit businesses face various types of discrimination, which put barriers to the growth of these firms.

Deshpande and Ramachandran (2016) created 10-year cohorts within National Sample Survey (NSS) data, using data from the 55th round (1999-2000) and the 68th round (2011-2012) of the Employment and Unemployment survey to investigate whether disparities are declining or not. A large part of the wage gap is due to unexplained factors caused by discrimination. In 2011-2012 as much as

44 per cent of the wage gap between others and OBCs, and 32 per cent of the wage gap between others and SC-STs is there due to unexplained factors and could be attributed to labour market discrimination (Deshpande and Ramchandran 2016).

Using the Economic Census (2005-2006), Harriss-White, *et. al.* (2014) created a state-wise all-India atlas of enterprises owned by SCs. They classify India into five regions- Northern region, Southern region, North-eastern region, Central-Eastern region and Western region and then present a brief atlas which shows the SC's share in different occupations.

IV Caste and Enterprise Ownership- Recent Trends

Economic Census data showed widespread inter-caste disparities in ownership of enterprises using various rounds of the Economic Census. According to the sixth Economic Census 2015-2016, there are 58.50 million establishments in India. Of these, 59.48 per cent are in rural areas, and 40.52 per cent are in urban areas. Among these establishments, 77.55 per cent are engaged in non-agricultural activities and the rest in agricultural and related activities.

Table 1: Enterprises Ownership SCs and STs, 1990-2015

	Total Private enterprises (million)	Percentage SC population	Percentage SC firms	Percentage ST population	Percentage ST firms
1990	22.14	16.33	9.85	8.08	2.92
1998	27.71	16.20	8.42	8.20	4.35
2005	37.58	16.14	9.82	8.26	4.05
2015*	52.29	16.63	11.40	8.6	5.4

Notes: *Sixth Economic Census recorded total 58.50 million enterprises, out of which 89.39 per cent (52.29 million) are under Private proprietorship.
Source: Census and Economic Census data (various issues).

Of the total 58 million establishments, SCs owned 11.4 per cent (12.7 per cent in rural, 9.8 per cent in urban) of the total non-agricultural establishments. They employed about 10 per cent of the total workforce engaged in these activities (Table 1). ST owners owned 5.4 per cent of total establishments and employed roughly five per cent of the total workforce. On the other hand, other social group owners (non-SC/ST/OBC) owned 42.4 per cent of total establishments and employed 47.1 per cent of the total workforce. OBC owners owned 40.8 per cent of total establishments and employed 37.9 per cent of the total workforce in this sector. This data clearly shows that SC and ST have disproportionately less share in enterprise ownership than their share in the population.

Apart from the Sixth Economic Census 2015-2016, the NSS 73rd round (NSS survey on operational characteristics of unincorporated non-agricultural enterprises, 2015-2016) is also one of the latest available databases on MSMEs. Table 2 shows the distribution of enterprises by the social group of owners in rural and urban areas and in the enterprise category as per NSS 73rd round 2015-2016.

Table 2: Percentage Distribution of Enterprises by Social Group of Owner

Sector	SC	ST	OBC	OTHERS
Rural	15.37	6.70	51.59	25.62
Urban	9.45	1.43	47.80	40.46
All	12.45	4.10	49.72	32.95
Micro	12.48	4.11	49.83	32.79
Small	5.50	1.65	29.64	62.82
Medium	0	1.09	23.85	70.80

Notes: *Other category includes forward Castes ('General 'class is often used) which is used to denote non-SC/ST/OBC population in Hindu religion.
Source: Annual Report 2020-2021, Ministry of Micro, Small and Medium Enterprises, p. 25-26.

While SCs, STs owned enterprises are concentrated more in rural areas, on the contrary, other owned enterprises are concentrated more in urban areas (Table 2). The transition from micro to small to medium indicates the persistent growth of enterprises. The missing middle is an important challenge in the MSME sector in India, but Table 2 shows that the small sector is also missing in SCs, STs owned establishments. Almost all of the SCs, STs owned enterprises are micro-enterprises. These establishments have a negligible 5.5 per cent share in small enterprises, and not even one was in the medium category.

Data from the last four economic censuses indicates a growing representation of SCs in the ownership of enterprises, but a close look at the data shows inter-caste disparities. The broad activity status for different social groups indicates that SCs owned enterprises have a higher share in construction (19.6 per cent), fishing and aquaculture (19.8 per cent), water supply, sewerage and waste management (15.5 per cent), arts and sports-related enterprises (16.4 per cent) (Table 3). Most of these occupations require less education, skill, and capital and require more manual labour.

Table 3: Broad Activity-wise Distribution of Proprietary Establishments in Which SCs Have a Higher Share (in per cent)

Broad activity	SC	ST	OBC	Others
Fishing and aqua culture	19.8	6.9	49.4	23.9
Construction	19.6	5.1	33.3	42.0
Arts entertainment, sports and amusement related	16.4	3.5	32.5	47.6
Water supply, sewerage, waste management	15.5	3.0	34.3	47.1
Transportation and storage	13.7	4.8	35.9	45.5

Source: Economic Census, 2015-2016.

Historically SCs face restrictions of access to education, professional skills, ownership of productive assets such as land and capital etc. Due to discriminatory attitudes towards SCs in these areas, their representation in establishments in these categories is much less than their share in the population (Table 4). For example, of the 7.5 lakh establishments in the education category, only 6.7 per cent are

owned by SCs; while 67.8 per cent of enterprises are owned by other social group (non-SC/ST/OBC). In the real estate category, SCs shares 7.5 per cent of the total 4.1 lakh establishments, contrary to 55 per cent shared by other social groups. In health and social work activity, out of 6.8 lakh establishments, 8.2 per cent are owned by SCs and 58.8 per cent are owned by others.

Table 4: Broad Activity-wise Distribution of Proprietary Establishments in Which SCs Have Lowest Share (in per cent)

Broad activity	SC	ST	OBC	Others
Education	6.7	2.4	23.1	67.8
Financial and insurance activities	7.1	2.7	32.9	57.3
Real estate activities	7.5	3.6	33.9	55.0
Human health and social work activities	8.2	2.2	30.8	58.8
Wholesale trade	8.6	3.2	40.5	47.7

Source: Computed from unit level data of Economic Census 2015-16.

Most SCs owned enterprises are engaged in traditional caste-based occupations such as leather tanning, footwear, sanitation-related activities, scrap business etc. (Deshpande and Sharma 2013). They have less participation in some occupations, which are among the top activities for other social groups such as food and Beverages, metal products, furniture, textiles, etc. (Table 5). Many SC-owned enterprises in food and beverages segments have adopted some names of shops which characterized them as upper castes, for example, Balaji Misthan Bhandar, Bhavani sweets corner, etc. "The stigma of untouchability has traditionally kept Dalits out of food-related industries" (Navsarjan Trust 2010, Shah, *et. al.* 2006).

Table 5: Occupational Category Distribution of MSMEs Owned by SCs and All Category Combined, All India (in per cent)

All Category	Fourth MSME census	SC-Owned	Fourth MSME census
Food products and beverages	17.77	Apparel	25.38
Apparel	15.63	Leather, footwear	16.24
Metal products	11.60	Food products and beverages	10.76
Furniture	8.06	Textile	7.27
Textile	8.95	Furniture	7.07

Source: Deshpande and Sharma 2013.

V Employment Trends

SCs, STs owned enterprises have not yet emerged as job givers; most of these enterprises are survivalists. Deshpande and Sharma (2013) stated, "Entrepreneurship as a vehicle for social mobility for Dalits is yet to become a reality for India". Among SC/ST-owned enterprises, employee share

(Establishments) is higher in rural enterprises, but among other social group-owned enterprises, the share of employment is higher in Urban enterprises.

SCs shared 16.4 per cent of the population in 2011; but they owned 9.8 per cent of all enterprises in 2005, which employed eight per cent of all non-farm workers. STs share 7.7 per cent of the population but own only 3.7 per cent of non-farm enterprises and employ 3.4 per cent of the workforce. On the other hand, the share of OBC in enterprise ownership and workforce roughly corresponds with their share in the population; other social group has a much higher share in enterprise ownership than their share in the population (Iyer, *et. al.* 2013). MSME census data showed that only four per cent of the total workforce is employed in SC-owned enterprises, 2.2 per cent in ST-owned enterprises, 27 per cent in OBC-owned enterprises, and 66 per cent in other social group-owned enterprises (Deshpande and Sharma 2013).

If we analyze the pattern of the structure of employees, we can see a distinct pattern. The percentage of SC employees in SC-owned enterprises is declining, while the proportions of employees from other social groups in enterprises owned by those respective groups are increasing. According to the MSME census, 2001-2002 and 2006-2007, the share of SC employees in SC-owned enterprises declined from 85 to 61 per cent, while among other-owned enterprises, 77 per cent of employees belong to the owner social group (Deshpande and Sharma 2013).

Table 6: Broad Activity Wise Share in Employment among SC Owned Enterprises

Top 5 activities	Employment share (%)	Bottom 5 activities	Employment share (%)
Fishing and aqua culture	17.0	Education	4.8
Construction	15.8	Financial and insurance	6.0
Arts entertainment, sports related	15.1	Electricity, gas, trading	6.4
Transportation and storage	12.0	Human health and social work	6.6
Water supply, sewerage, waste related	12.0	Information and communication	7.1

Source: Computed from unit level data of Economic Census 2015-16.

Of the total workforce employed in this sector, 10 per cent were employed in SC-owned establishments, which is less than their share in establishment ownership and population. The highest numbers of workers were employed in other social group-owned firms. Other social groups that constitute historically forward castes are the only category with a higher share in employment compared to their share in ownership of firms.

Data shows apparent inter-caste disparity if we further stratify overall employment into different activity categories. SC-owned enterprises have a much higher employment share in low-paid activities such as fishing and aquaculture, construction, arts, entertainment, transport and storage, water supply, sewerage, waste management, etc. Within higher-earning sectors such as education, financial services, health and social work, information and communication, and more, SC-owned enterprises possess a significantly lesser market share (Table 6).

Firms owned by SCs and STs are smaller in size than those of other social group-owned firms. The average size is 2.73 for enterprises owned by non-SC/ST owners, 1.72 for SCs and 1.89 for STs (Iyer, *et. al.* 2013). For firms with more than three employees (medium number of employees in manufacturing MSMEs-MSME census 2006-2007), 70 per cent of the employees in other-owned firms are from the same castes, 39 per cent of employees in SC-owned firms are SCs (Deshpande and Sharma 2013).

The size of an enterprise is an important indicator of the enterprise scale as it clearly shows the entrepreneurial tendency of enterprises. National Commission on Enterprises in the unorganised sector (2008) showed that SC-ST-owned enterprises are more informal and have low productivity. Own account enterprises (OAE) are those that run without any hired worker or are small enterprises that depend on family labour. Establishments are enterprises that work with at least one hired worker. SCs, STs and OBCs have a relatively high share in OAE and a relatively low share in establishments. In the case of SC-owned enterprises, out of total 12.4 per cent share, 13.8 per cent were OAE, and 5.5 per cent were establishments for STs, out of a total 4.1 per cent share, 4.5 per cent are OAE, and two per cent are establishments. Among other social group-owned enterprises, out of a total 32.9 per cent share, 30.3 per cent were OAE, and 47 per cent were establishments (NSS 73 round 2015-2016). Thus SC-STs have a higher share in OAE, while other social groups have a higher share in establishments (Vaidyanathan 2019). Self-employed individuals or Owner operated units are more survivalist in nature than entrepreneurship tendencies. Thus the proportion of owner-operated enterprises is highest among SCs and lowest among other category.

Table 7: Percentage Distribution of Propriety and Partnership Enterprises by the Social Group of their Owner/Major Partner for Each Sector and Enterprise Type (All-India)

Social Group	Rural (%)		Urban (%)	
	OAE	Est.	OAE	Est.
ST	6.9	4.8	1.6	0.9
SC	16.0	8.7	11.0	4.2
OBC	51.7	50.0	49.4	42.4
Other	24.6	35.7	37.2	51.3
All	100	100	100	100

Notes: OAE- own account Enterprises; Est.- establishments.

Source: Statement 15.0, NSS Report No.581: Operational Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, NSS 73rd round (2015-16), Ministry of Statistics and Programme Implementation, Government of India.

In urban areas, the disparity is much higher among social groups (Table 2 and Table 7). In urban areas, enterprises owned by SCs, and STs have a higher share in rural areas and Own account enterprises (OAE-single-headed proprietary

enterprises). In establishments that worked with hired labour, the share of SC-ST-owned enterprises is much less than their share in the population (Table 7). As per the 73rd round of NSS data, SC-owned enterprises account for 12.45 per cent of the total; however, their ownership share is higher in rural regions (15.37 per cent), particularly within the realm of own account enterprises (16 per cent) in rural areas. They have a lower share in urban areas (9.45 per cent) and a lower share in urban establishments (4.2 per cent). Self-employed individuals manage these own account enterprises, these are survivalist in nature and are susceptible to economic shocks.

A recent survey by the Ministry of Micro, Small and Medium Enterprises showed that 12.45 per cent of the total unregistered non-agriculture MSMEs were owned by scheduled castes, but not even one was a medium-sized MSME. This indicates that most enterprises owned by Dalits (SCs) are only self-employed individuals depending on family labour and family resources. SCs and STs have lower participation in business ownership relative to their share in the population; the proportions of these businesses were higher in rural areas (Annual report 2020-2021, Ministry of MSME)

VI Discussion

In economic literature, theories of discrimination can be divided into two heads named as 'Theory of Statistical Discrimination' by Arrow (1971), Phelps (1972), Akerlof (1984) and 'Theory of taste for discrimination' given by Becker (1957), etc. The theory of Statistical Discrimination argues that rational economic agents discriminate due to imperfect information. These theories violate the assumption of perfect information and say that agents do not pay according to their marginal productivity but are paid according to their group identities. Employers do not have perfect information about employees; thus, identity works as an indicator of quality in statistical discrimination theories (Arrow 1971, Akerlof 1984). Another side of economic theories comes under the 'Theory of Taste for Discrimination'. One of the famous economists of this approach, Becker (1957), said that an individual could discriminate inspired by his 'Taste for discrimination'. Becker pointed out that individuals can discriminate without objectively considering facts such as quality or efficiency. He claimed that individuals could discriminate even at the cost of efficiency or profit. Pre-market and Market Discrimination led unfavourable outcomes for SC-ST entrepreneurs, as explained by the theory of taste for discrimination.

Institutional Economics describes that social-cultural and economic institutions affect economic growth and development. The caste system works as an institution in India and impacts the economy. It plays a vital role in shaping economic opportunities for individuals. The fact is substantiated by the higher share of Dalits (SCs) in wage labourers, casual labourers, sanitary workers, and carcass cleaners, along with their relatively lower representation in well-paying

positions. The persistent wage gap among social groups and higher poverty rates among SCs/STs confirm this reality.

Caste still works as an important indicator of socio-economic outcomes in India. Dalit caste networks are weak; they have less capital; thus, they see the state as a balancing institution. However, due to historical legacy and relatively more social and economic capital, upper castes benefit more from the state, reproducing the caste and class character in markets. Indian markets are not perfectly competitive; thus, caste identity works as an institution that affects market outcomes. "Caste networks suppress competition by protecting market shares, creating adverse conditions for Dalits in the factor and product markets" (Harriss-White 2014, p. 19).

SCs and STs face difficulty obtaining initial formal credit; they get informal credit at much higher rates. It is reported that sometimes they get lesser prices for their goods and services, or sometimes they are forced to sell at lower prices due to the discriminatory attitude of consumers (Jodhka 2010). Residential segregation is an essential result of the caste system in India. We can see separate Scheduled caste colonies in most of the states. Geographical segregation limits the market for SCs and STs entrepreneurs. Due to the high incidence of poverty among SCs and STs, they may have to charge lower prices for their goods and services. Dalit colonies have poor infrastructure facilities such as poor education, health, roads, and other municipal facilities, limiting economic opportunities for Dalits. Prakash (2018), in his empirical study of 90 SC entrepreneurs, concluded that the "market is mediated and influenced by social structures and social contexts in which the economic agents live".

MSMEs need both working capital as well as long-term capital. A large share of them depends on credit through social networks, their savings, and the sale of their assets. Dalit entrepreneurs have fewer assets due to their historical legacy; thus, they face more problems accessing formal credit. Dalits get little credit from other castes or obtain credit at higher rates because other castes think that businesses owned by dalits may not yield substantial profits. Caste plays a significant role in the growth of enterprises; SC-owned enterprises recorded lower growth, and these enterprises are survivalist.

Weber's Theory of Industrial location states that the place of the business and industries is essential to business success (Weber 1929). Other castes have a significant presence in the market; they do not want to share places with new business entrants such as dalits and tribals. While certain states have implemented policies to allocate market space for Dalits, a closer examination reveals that these individuals have been assigned shops in less advantageous locations, with smaller shops designated for them.

The government has initiated policies such as public procurement from SC-ST-owned establishments, priority sector lending to weaker sections of society, stand-up schemes, etc. The central government as well as the state government have initiated various policies for the betterment of Dalits in business; but due to inefficient implementation, these policies are not very effective in outcomes. For

example, in the stand-up India scheme, banks have been mandated to give loans between ₹10 Lakh and ₹1 Crore to at least one Scheduled Caste or Scheduled Tribe borrower and at least one woman borrower per bank branch for setting up a greenfield enterprise. Data on various beneficiaries under Stand Up India Scheme (2019-2021) shows that 80 per cent of the loan goes to women, 13.8 per cent to SCs, and 5.7 per cent to STs.[1]

While SCs are under-represented in upper echelons of government, on the other hand, SCs have disproportionate higher representation at clerical posts and group D level posts, *safai karamcharis*. Upper echelons of government and some departments such as police, commercial tax department, electricity board and municipalities govern most aspects of businesses licenses, site allocation, infrastructure facilities, logistics facilities etc. It is often seen that SCs have less representation in the upper echelons of these departments, which leads to the unfavourable exclusion of SCs in business. Lack of early-stage Risk capital, Inexperience in deploying credit and capital, lack of organizational capability, Inability to deploy Managerial talent, etc., are important challenges faced by SCs entrepreneurs (Mehrotra, *et. al.* 2020).

In the last two decades, a few Dalit businessmen became billionaires, which gave rise to debate on 'Dalit capitalism'. Chandrabhan Prasad, a member of the Dalit Indian Chamber of Commerce and Industry (DICCI), argued that dalits should be the owner of capital, Dalits should become Entrepreneurs, and they should become Job givers. Contrary to that, Gopal Guru and Anand Teltumbde argued that in the new dalit capital, members remain subordinate to politicians and the state; a few members of the dalit community became billionaires, but the 'spectacle of the few' masks the neglect of the many (Guru 2012, Teltumbde 2011).

Thus we need to think deeper about the factors responsible for the disparity in ownership of firms and the growth of these enterprises. These factors include social capital, networks, unfavourable exclusion or unfavourable inclusion, discrimination in the factor market or product market, etc. A more comprehensive analysis needs to be conducted at various levels, including the state, local, and occupation levels, to understand the role of social capital as trust, network effects etc. and the determinants of growth of entrepreneurship in India.

VII Policy Implications

Dr B.R. Ambedkar said in a speech - "We want industrialisation of India as the surest means to rescue the people from the eternal cycle of poverty in which they are caught. Industrialisation of India must, therefore, be grappled with immediately" (Ambedkar 1990). Dalit youths have to acquire the required skill, innovative mindset and entrepreneurial spirit so that they can play a more significant role in businesses.

Some historical examples show us that business ownership and asset ownership have a significant positive correlation with social mobility: the economic progress of ethnic minorities in the US, the economic progress of ethnic

minorities in Malaysia and South Africa, etc. Indian society is structured in a hierarchal social order based on caste, gender, etc. Historically marginalised sections such as SC-STs have experienced lower status in most spheres of life. Even now, dalits, the most underprivileged sections of society, are at the bottom in various economic indicators such as business ownership, asset ownership, education-health-related indicators, consumption expenditure etc.

Since independence, we have had affirmative action policies in education, jobs, legislature, etc., but the government has never adopted a proactive approach in the field of fair market participation or equitable asset ownership in the market for historically deprived sections. Liberalisation -Privatisation- Globalisation has changed the employment scenario in India; it also affects the government's job opportunities. Hence it drastically reduced reserved jobs for marginalised sections. Therefore, Business ownership and fair market participation can play a vital role in the upward social mobility of marginalised sections.

Some countries implemented direct affirmative action policies to address the disparity in business ownership, such as the Malaysian affirmative action programme, which reserved 30 per cent of all business ownership for ethnic Malays and the South-African policy of Black Economic Empowerment to redress the inequalities of Apartheid, etc. The public procurement policy of the Government of India is a progressive step in this direction. The affirmative action policy should not only focus on increasing participation but also on improving business performance because business failure can discourage first-generation dalit entrepreneurs and make them homeless.

Endnote

[1.] https://static.pib.gov.in/WriteReadData/specificdocs/documents/2021/nov/doc2021113061.pdf

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Social Capital and Human Well-Being: A Comparative Study of BRICS Countries

Shiv Kumar

On the basis of data collected from 8,599 individuals from five BRICS countries by World Values Survey, the present paper examines the impact of social capital on human well-being. In the study, generalized trust among individuals is taken as the proxy indicator of social capital. It is found in the analysis of data that in all the five BRICS countries, social capital has a positive and significant impact on human well-being. Thus, the study suggests that sustainable economic development programmes should integrate social capital as an essential element.

Keywords: Freedom, Happiness, Health, Satisfaction, Trust

I Introduction

In the past 25-30 years, Putnam (1993, 1995), Coleman (1988, 1990) and World Bank [Narayan (1997), Collier (1998), Grootaert (1999) and Knack (1999, 2002)] explored the term social capital in the context of political participation, human capital formation, and economic development respectively. Glaeser, *et. al.* (2002) presented an economic approach to social capital and Okunmadewa, *et. al.* (2007) studied the effects of social capital on rural poverty. Social capital theorists claim that social capital has positive impacts on various aspects of societal life, such as economic well-being, health, crime rates, educational achievement, and adolescent development (Woolcock 1998). Thus, the main objective of this paper is to examine the inter-linkage between social capital and human well-being in the five BRICS countries – Brazil, Russia, India, China, and South Africa. The paper is divided into six sections. Following the introduction, the second section presents the data sources and methodology. The concept of social capital with literature review is explained in section three. Section four measures the social capital in five BRICS countries. Section five examines the impact of social capital on human well-being and the final section concludes the paper.

II Data Sources and Methodology

BRICS represent some of the major emerging economies of the world, covering over 40 per cent of the world population. Therefore, the study is based on data

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collected from 8599 individuals in five BRICS countries by World Values Survey (WVS) wave 6 (2010-14). The WVS is a global research project that explores people's values and beliefs, how they change over time and what social and political impact they have. The present paper is based on the individual responses for21 questions out of a total set of 258 common questions used in WVS in all countries. The collected data are analyzed by using correlation, regression, t-test, F test, one-way ANOVA, multiple comparison of means test by applying post Hoc tests in addition to descriptive statistics.

III The Concept of Social Capital: A Literature Review and Research Gaps

Social capital has been widely discussed across the social sciences in recent years. One of the pioneers in the study of social capital is Hanifan (1920) who argued that "social capital refers to those tangible assets that count for most in the daily lives of people, namely, goodwill, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit." Others include Jacobs (1961), Bourdieu and Passeron (1977), Loury (1977) [As cited in Woolcock 1998], and Meehan, *et. al.* (1978). Bourdieu (1984, 1986) developed the concept of social capital during the 1970s and 1980s, but it attracted much less attention than other areas of his social theory. In the past 25-30 years, Putnam (1993, 1995) and Coleman (1988, 1990) are credited with bringing the term "social capital" to prominence.

In the literature, social capital is often defined as a sociological variable, i.e., referring to the relationships between people. From this perspective social capital is relational, not something owned by any individual, but rather something shared in common. However, there is a perspective that social capital stands for the ability of actors to secure benefits by virtue of membership in networks or other social structures (Portes 1998). Thus, it is possible to distinguish 'individual' and 'group' social capital. Individual social capital, sometimes referred to as 'social network capital', can be defined as the set of social attributes possessed by an individual – including charisma, contacts and linguistic skill – that increase the returns to that individual in his or her dealings with others. Community-level 'group' social capital is defined as the set of social resources of a community that increases the welfare of that community (Glaeser, *et. al.* 2002). Bezemer, *et. al.* (2004) used the term 'relational capital' for individual social capital, and 'social network' or 'communal social capital' for group social capital. Knack (1999, 2002) differentiated social capital as government social capital and civil social capital. He defined government social capital as the institutions, the rule of law, and the civil liberties that influence people's ability to cooperate for mutual benefit; and civil social capital as the common values, norms, informal networks, and associational memberships that affect the ability of individuals to work together to achieve common goals. Grafton and Knowles (2004) distinguished between civic social capital and public institutional social capital, with the latter being defined

by measures of corruption and democracy. Grootaert (1999) talked about a macro level of social capital which includes institutions such as government, the rule of law, civil and political liberties, etc. These notions of government, public institutional and macro social capital are identical to formal institutions. Collier (1998) noted that many people restrict the term "social capital" to civil social capital. Thus, for the individual level study to find the inter-linkage between social capital and human well-being, it seems wise to restrict the definition of social capital to civil social capital.

IV Measurement of Social Capital in Brics

Trust and trustworthiness increase the chances of exchange among people without written contractual obligations. Instead people rely on expectations of mutual obligation, honesty, reciprocity, mutual respect, and helpfulness (Narayan 1997). Thus, in the study, generalized trust among individuals is taken as the proxy indicator of social capital. To measure generalized trust, individuals were asked in World Values Survey about seven questions (Appendix 1).

To construct the social capital index, the individual scores on these seven questions are added and the resultant score is rescaled from 0 to 100 where 0 represents the lowest level of social capital. For all the BRICS countries together, mean score for individuals on the social capital index is found to be 51.92 points out of maximum possible 100 points with standard deviation 18.55.For the countries of Brazil, Russia, India and China, there is no significant difference between mean scores on social capital for individuals with different marital status; for South Africa, however, social capital is significantly high for married and single individuals as compared to divorced/separated/widowed individuals (Table 1).

It is observed in the analysis of data that social capital is related to the religious dimension of individuals since social capital is found to be different among different religions. In Brazil, for Christians the mean social capital score of 49.63 points is significantly higher as compared to the individuals with no religion (Table 1). For the individuals with Buddhist, Muslim, Spiritista, Espirit, Candombl, Umbanda, Esoterism, Occult, and other not specific religion in Brazil, the mean social capital score is observed as 55.29 points which is significantly different from the mean score for individuals with no religion and the Evangelical individuals. In Russia, the mean score of social capital for the individuals with no religion is calculated as 51.63 points, for individuals with Orthodox religion as 55.38 points and for the individuals with Buddhist, Muslim, or other not specific religion as 61.72 points. All these mean scores are found to be significantly different from each other. In India, the mean social capital score 51.97 points for Hindu individuals is calculated as the significantly lowest as compared to the individuals with Christian, Buddhist, Orthodox, and other not specific individuals where it is found to be more than 59 points. For Protestant, Roman Catholic, Muslim, Taoism, Protestant Fundam, Ancient Cults, or other not specific religion

in China, the mean social capital score is observed as 66.28 points which is significantly high as compared to the individuals with no religion and the individuals with Buddhist religion. In South Africa, for Christians the social capital score is 58.21, for African religion individuals social capital score is 58.19 and for Buddhist, Hindu, Muslim, Orthodox, and other not specific religious group, the mean social capital score is 57.16. All these scores are significantly high for the individuals with no religion where it is observed as 53.94 points.

Table 1: Mean Score on Social Capital* with Socio-Economic Characteristics

Characteristics	Brazil		Russia		India	
	Number of Individuals	Mean Score on Social Capital	Number of Individuals	Mean Score on Social Capital	Number of Individuals	Mean Score on Social Capital
Marital Status						
Married[a]	729	48.87 (17.63)	908	55.45 (16.13)	1206	52.71 (20.36)
Separated[b]	193	48.68 (20.98)	447	54.41 (17.60)	119	55.53 (19.51)
Single	301	47.21 (17.91)	222	53.27 (16.31)	145	56.49 (20.38)
Religion						
None	180	44.97 (17.95)	411	51.63 (16.06)	-	-
Christian	698[c]	49.63 (18.09)	31[e]	54.16 (14.71)	99[g]	59.09 (13.37)
Evangelical	283	46.19 (18.28)	-	-	-	-
Orthodox	-	-	1018	55.38 (16.70)	-	-
Hindu	-	-	-	-	1061	51.97 (20.99)
Muslim	-	-	-	-	184	53.99 (18.40)
Buddhist	-	-	-	-	-	-
African	-	-	-	-	-	-
Other	62[d]	55.29 (18.17)	117[f]	61.72 (15.52)	126[h]	59.06 (20.11)
Sex						
Male	456	50.41 (18.43)	678	54.60 (16.10)	929	52.87 (20.61)
Female	767	47.25 (18.07)	899	55.04 (16.96)	541	54.07 (19.82)
Age (Years)						
18-30	353	46.07 (18.54)	387	52.85 (16.02)	443	52.99 (21.81)
31-60	683	49.02 (17.70)	831	54.56 (16.53)	890	53.34 (19.60)
61 and Above	187	50.74 (19.37)	359	57.66 (17.01)	137	54.14 (20.09)
Level of Education						
None	-	-	-	-	260	52.15 (20.50)
Primary	-	-	-	-	423	51.83 (20.91)
None to Primary	531[l]	47.36 (18.40)	26	56.48 (20.44)	-	-
Secondary	-	-	671	53.67 (16.69)	425	53.16 (19.40)
Senior Secondary	-	-	362	54.86 (16.08)	121	59.16 (21.31)
Sec. & Sen. Sec.**	482[m]	47.14 (17.79)	-	-	-	-
Grad. & Above***	210[n]	54.10 (18.00)	518	56.28 (16.54)	241	54.50 (19.73)
Income Level						
Quintile 1	278	46.08 (17.40)	251	52.90 (17.75)	402	54.25 (21.70)
Quintile 2	275	48.89 (18.70)	566	54.82 (16.22)	359	49.70 (20.70)
Quintile 3	474	49.21 (18.73)	604	55.30 (15.74)	351	52.23 (19.00)
Quintile 4	-	-	-	-	242	55.41 (20.24)
Quintile 5	-	-	-	-	116	60.13 (15.50)
Quintiles 4 & 5	196	49.23 (17.56)	156	56.34 (18.94)	-	-
All	*1223*	*48.43 (18.27)*	*1577*	*54.85 (16.59)*	*1470*	*53.31 (20.32)*

Table 1: Mean Score on Social Capital* with Socio-Economic Characteristics

Characteristics	China		South Africa	
	Number of Individuals	Mean Score on Social Capital	Number of Individuals	Mean Score on Social Capital
Marital Status				
Married[a]	1265	58.71 (14.10)	1230	57.51 (18.37)
Separated[b]	93	59.92 (18.29)	214	53.89 (20.55)
Single	169	56.86 (13.01)	1358	57.58 (18.70)
Religion				
None	1298	58.22 (14.29)	527	53.94 (19.84)
Christian	-	-	978[j]	58.21 (18.02)
Evangelical	-	-	-	-
Orthodox	-	-	-	-
Hindu	-	-	-	-
Muslim	-	-	-	-
Buddhist	157	58.54 (11.84)	-	-
African	-	-	930	58.19 (18.45)
Other	72[i]	66.28 (17.28)	367[k]	57.16 (19.13)
Sex				
Male	750	58.52 (14.20)	1364	57.10 (18.62)
Female	777	58.64 (14.37)	1438	57.42 (18.83)
Age (Years)				
18-30	350	57.01 (13.50)	1165	57.50 (19.04)
31-60	926	58.18 (14.24)	1446	57.41 (18.18)
61 and Above	251	62.26 (14.95)	191	54.70 (20.67)
Level of Education				
None	122	64.01 (13.90)	-	-
Primary	340	60.56 (14.80)	-	-
None to Primary	-	-	263	54.09 (19.38)
Secondary	490	57.48 (14.22)	433	57.12 (18.77)
Senior Secondary	320	57.44 (14.23)	1804	57.97 (18.46)
Sec. & Sen. Sec.**	-	-	-	-
Grad. & Above***	255	56.90 (13.09)	302	56.03 (19.38)
Income Level				
Quintile 1	254	59.09 (15.05)	346	59.52 (19.98)
Quintile 2	524	59.35 (14.23)	549	56.99 (16.47)
Quintile 3	528	57.54 (14.43)	1057	57.54 (18.04)
Quintile 4	-	-	718	55.51 (20.32)
Quintile 5	-	-	132	59.85 (19.67)
Quintiles 4 & 5	221	58.66 (13.04)	-	-
All	*1527*	*58.58 (14.28)*	*2802*	*57.26 (18.72)*

Notes: *Generalized trust among individuals (measured by trustworthiness, and trust in family, neighbourhood, personally known people, people met for the first time, people of another religion and people of another nationality) is taken as the proxy indicator of social capital. Individual scores on these seven ingredients of trust are added and the resultant score is rescaled from 0 to 100 to construct the Social Capital Index (SCI) where 0 represents the lowest level of social capital; ** Sec. & Sen. Sec. = Secondary and Senior Secondary; *** Grad. = Graduation.
a. Includes married, and living together as married.
b. Includes divorced, separated, and widowed.
c. Includes Protestant, and Roman Catholic.

d. Includes Buddhist, Muslim, Spiritista, Espirit, Candombl, Umbanda, Esoterism, Occult, and other not specific.
e. Includes Jew, Protestant, Roman Catholic.
f. Includes Buddhist, Muslim, and other not specific.
g. Includes Christian, Jew, Protestant, and Roman Catholic.
h. Includes Buddhist, Orthodox, and other not specific.
i. Includes Protestant, Roman Catholic, Muslim, Taoism, Protestant Fundam, Ancient Cults, and other not specific.
j. Includes Jehovah Witnesses, Jew, Pentecostal, Protestant, and Roman Catholic.
k. Includes Buddhist, Hindu, Muslim, Orthodox, and other not specific.
l. Includes No Formal Education, Incomplete Primary School, and Complete Primary School.
m. Includes Incomplete Secondary School: Technical/Vocational Type, Complete Secondary School: Technical/Vocational Type, Incomplete Secondary School: University-Preparatory Type, and Complete Secondary School: University-Preparatory Type.
n. Includes Some University-Level Education: Without Degree, and Some University-Level Education: With Degree.
Figures in parentheses are standard deviations.
Source: Calculated from World Values Survey, Wave 6 (2010-14) Data.

The absolute mean difference of social capital scores between male and female respondents is 3.16 in Brazil which is statistically significant (Table 1). However, for all other BRICS countries, this difference in mean score is found to be statistically insignificant. It is also observed that in Brazil, Russia and China the mean social capital score has increased significantly with the rise in age of individuals. On the other hand, mean social capital score is rising with the age in India and is falling with the age in South Africa but these mean differences are not statistically significant.

In the study, social capital mean scores are tabulated with the level of education and income of the individuals and it is found that as the level of education rises, the score on social capital index rises at the significant level except for China where it decreased from 64.01 points to 56.90 points (Figure 1 and Table 1). It is also observed that in India as the level of income of the individuals rises the mean social capital also rises at the significant level, but the reverse trend has been found in South Africa where it decreases from 59.52 points to 55.51 points (Figure 2 and Table 1). In other three countries of BRICS – Brazil, Russia and China – the mean social capital score has not significantly related with the level of income of the individuals.

Figure 1: Mean Score on Social Capital with the Level of Education
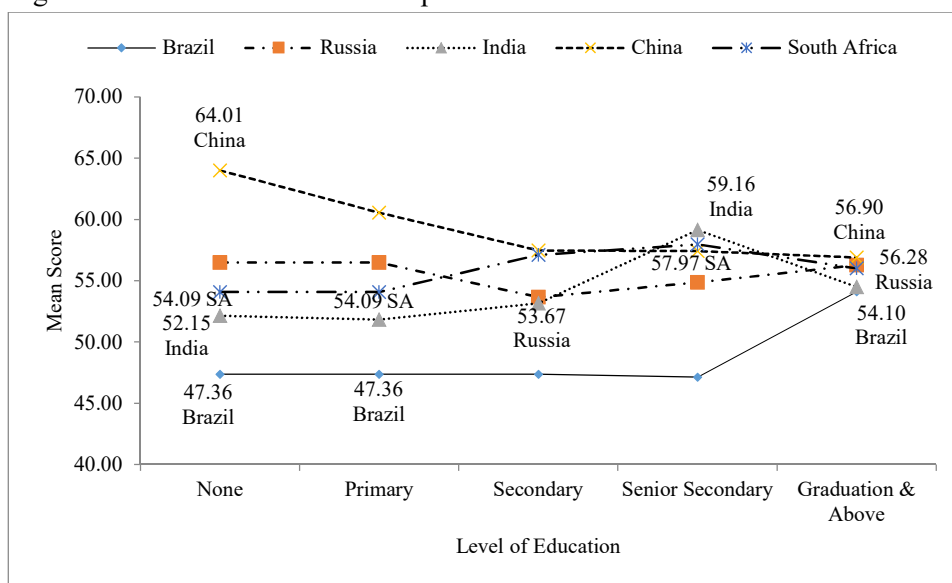
Source: Calculated from World Values Survey, Wave 6 (2010-2014) Data.

Figure 2: Mean Score on Social Capital with the Income Level
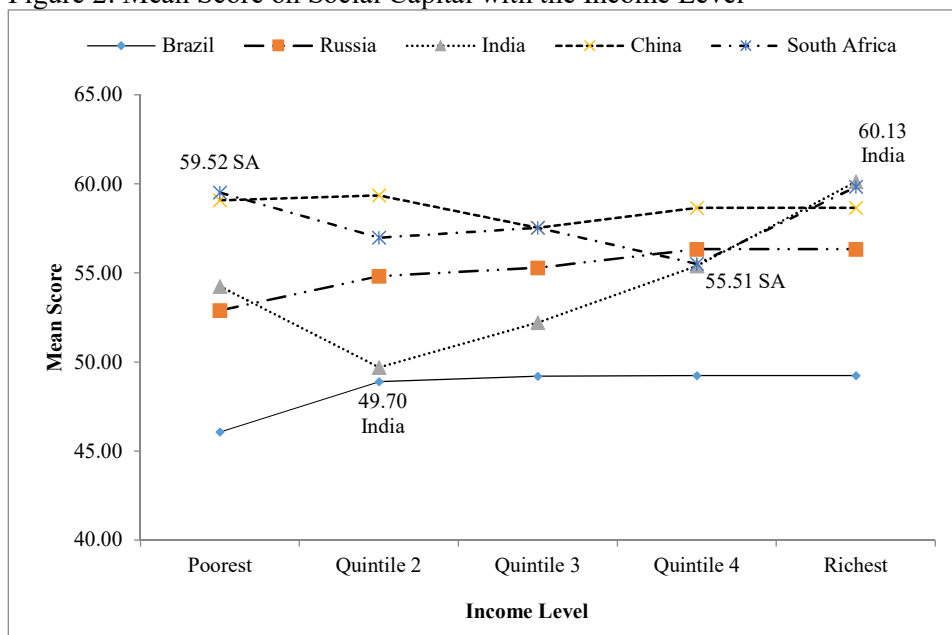
Source: Calculated from World Values Survey, Wave 6 (2010-14) Data.

V Social Capital and Human Well-Being

The main objective of this study is to analyze the impact of social capital on human well-being of individuals. The individual well-being is hypothesized to be influenced by the independent variables included in the equation below:

$$W_i = a + b_1 SC_i + b_2 HC_i + b_3 Y_i + b_4 SX_i + b_5 AG_i + u_i \qquad \ldots(1)$$

Where, W_i = Index of Human Well-Being of Individual i
        SC_i = Individual Endowment of Social Capital
        HC_i = Individual Endowment of Human Capital
        Y_i = Household Income Level
        SX_i = Gender of Respondent
        AG_i = Age of Respondent
        u_i = Error Term

(i) *Variable Definitions*

a) *Human Well-Being:* Following the methodology of Grootaert (1999), human well-being index is constructed by adding individual scores on seven different aspects namely, happiness in life, health condition, satisfaction in life, freedom of choice, financial satisfaction, citizenship proud, and the extent of savings (Appendix 2). The responses on these seven aspects are added and then rescaled from 0 to 100 to measure well-being of individuals where 0 represents the lowest level of human well-being.

b) *Social Capital:* Generalized trust among individuals (measured by trustworthiness, trust in family, neighbourhood, personally known people, people met for the first time, people of another religion and people of another nationality) is taken as the proxy indicator of social capital. Individual scores on these seven ingredients of trust are added and the resultant score is rescaled from 0 to 100 to construct the Social Capital Index (SCI) where 0 represents the lowest level of social capital.

c) *Human Capital:* The human capital variable is measured as the highest education level attained by the individual.

d) *Income:* Level of income is calculated by asking individual counting all wages, salaries, pensions, and other incomes, in which group the individual considers his/her household in the ten income groups, where the first decile is the lowest income group.

e) *Gender of Respondent:* A dummy variable is used for the gender of respondent (D=1 if male, D=0 if otherwise).

f) Age of Respondent: Age of respondent is measured in years.

(ii) **Results and Discussion**

In Table 2 the first column under each country shows the basic model of individual well-being without social capital. This model shows that 21.4 per cent, 19.9 per cent, 15.8 per cent, 7.9 per cent and 0.1 per cent of the variations in well-being of individuals are explained by the specified human capital, income and demographic factors of the individuals in Russia, South Africa, China, Brazil and India respectively. In specific terms, in China and South Africa, higher level of education of the individual significantly improves the well-being (coefficients 0.373 and 0.113 respectively). On the contrary, in India, human capital has the negative impact on human well-being which is more significantly explained by the income of the household (coefficient 0.038). It is observed that in Brazil, Russia and South Africa, the level of income, with coefficients 0.278, 0.425 and 0.403 respectively, is the greatest contributor in human well-being. It is also observed that South Africa is the only country among five BRICS countries where both human capital and income have the positive and significant impact on human well-being.

Table 2: Social Capital and Human Well-Being in BRICS

	Brazil		Russia		India	
	Basic Model (without Social Capital)	with Social Capital	Basic Model (without Social Capital)	with Social Capital	Basic Model (without Social Capital)	with Social Capital
	Coefficients (t-values)	*Coefficients (t-values)*	*Coefficients (t-values)*	*Coefficients (t-values)*	*Coefficients (t-values)*	*Coefficients (t-values)*
Intercept	50.864***	46.005***	40.032***	36.547***	154515.219*	192821.485**
	(17.547)	(14.863)	(16.904)	(14.501)	(1.811)	(2.331)
Social Capital	-	0.119***	-	0.088***	-	0.251***
		(4.269)		(3.910)		(9.899)
Human Capital	0.023	0.007	−0.023	−0.029	−0.050*	−0.062**
	(0.755)	(0.217)	(−0.995)	(−1.284)	(−1.810)	(−2.330)
Income	0.278***	0.275***	0.425***	0.417***	0.038	0.018
	(9.703)	(9.645)	(18.087)	(17.773)	(1.421)	(0.696)
Gender	−0.026	−0.017	0.009	0.008	−0.017	−0.028
	(−0.960)	(−0.626)	(0.384)	(0.356)	(−0.648)	(−1.092)
Age	0.008	−0.010	−0.117***	−0.129***	0.001	−0.002
	(0.275)	(−0.325)	(−4.955)	(−5.460)	(0.032)	(−0.074)
Number of Observations	1223	1223	1577	1577	1470	1470
R^2	0.082	0.096	0.216	0.224	0.003	0.066
Adjusted R^2	0.079	0.092	0.214	0.222	0.001	0.062
F-Statistics	27.340***	25.827***	108.587***	90.718***	1.153	20.582***
Durbin-Watson Statistics	1.778	1.770	1.738	1.735	1.589	1.683

Table 2: Social Capital and Human Well-Being in BRICS

	China		South Africa	
	Basic Model (without Social Capital)	with Social Capital	Basic Model (without Social Capital)	with Social Capital
	Coefficients (t-values)	*Coefficients (t-values)*	*Coefficients (t-values)*	*Coefficients (t-values)*
Intercept	47.099***	35.332***	41.367***	39.574***
	(18.969)	(12.206)	(21.820)	(18.814)
Social Capital	-	0.176***	-	0.033**
		(7.545)		(1.964)
Human Capital	0.373***	0.374***	0.113***	0.111***
	(15.413)	(15.694)	(6.187)	(6.073)
Income	−0.010	−0.010	0.403***	0.405***
	(−0.442)	(−0.432)	(23.006)	(23.092)
Gender	0.023	0.012	−0.027	−0.027
	(0.868)	(0.447)	(−1.601)	(−1.622)
Age	0.086***	0.103***	−0.003	−0.002
	(3.122)	(3.774)	(−0.171)	(−0.132)
Number of Observations	1527	1527	2802	2802
R^2	0.160	0.191	0.200	0.202
Adjusted R^2	0.158	0.188	0.199	0.200
F-Statistics	72.609***	71.608***	175.358***	141.201***
Durbin-Watson Statistics	1.658	1.646	1.689	1.690

Notes: Figures in parentheses are t-values. ***significant at one per cent, **significant at five per cent and *significant at 10 per cent. The dependent variable is the well-being of individuals.
Source: Computed from World Values Survey, Wave 6 (2010-14) Data.

The social capital variable is introduced in the second column of Table 2 under each country. The inclusion of this variable led to improvement in the adjusted R^2 from 0.079 to 0.092 in Brazil, 0.214 to 0.222 in Russia, 0.001 to 0.062 in India, 0.158 to 0.188 in China and 0.199 to 0.200 in South Africa. The analysis of data in Table 2 reveals that in all the five BRICS countries, social capital significantly as well as positively influenced the human well-being with the coefficients of 0.119, 0.088, 0.251, 0.176, and 0.033 in Brazil, Russia, India, China and South Africa respectively. It is also found that in South Africa, along with human capital and income, social capital significantly influences the well-being status of individuals. The results in Table 2 also show that household well-being is not influenced by the gender of the individual whereas the age of the individual has a dual effect. In Russia, the age of the individual has a negative impact, and in China it has a positive impact on human well-being.

VI Conclusion

In the present paper, the impact of social capital on human well-being is studied on the basis of field survey data collected by World Values Survey, Wave 6 (2010-14) in five BRICS countries – Brazil, Russia, India, China and South Africa. In the study, generalized trust among individuals is taken as the proxy indicator of

social capital. It is found in the study results, that in all the five BRICS countries, social capital positively influenced human well-being and thus, is an important instrument to raise the well-being of individuals. Thus, with the many positive benefits of social capital, it is concluded that increasing levels of this dynamic form of capital can help individuals, households and communities to become more sustainable. Finally, the study suggests that development programmes should integrate social capital as an essential element and like human capital, the investments in the social capital should also be made.

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Appendix 1

Seven Questions in World Values Survey, Wave 6 (2010-14), to Measure Generalized Trust

1. Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?
-Most people can be trusted   (2)
-Need to be very careful   (1)

2. Do you trust people from your family completely, somewhat, not very much or not at all?
-Trust completely   (4)
-Trust somewhat   (3)
-Do not trust very much   (2)
-Do not trust at all   (1)

3. Do you trust people from your neighbourhood completely, somewhat, not very much or not at all?
-Trust completely   (4)
-Trust somewhat   (3)
-Do not trust very much   (2)
-Do not trust at all   (1)

4. Do you trust people you know personally completely, somewhat, not very much or not at all?
-Trust completely   (4)
-Trust somewhat   (3)
-Do not trust very much   (2)
-Do not trust at all   (1)

5. Do you trust people you meet for the first time completely, somewhat, not very much or not at all?
-Trust completely   (4)
-Trust somewhat   (3)
-Do not trust very much   (2)
-Do not trust at all   (1)

6. Do you trust people of another religion completely, somewhat, not very much or not at all?
-Trust completely   (4)
-Trust somewhat   (3)
-Do not trust very much   (2)
-Do not trust at all   (1)

7. Do you trust people of another nationality completely, somewhat, not very much or not at all?
-Trust completely   (4)
-Trust somewhat   (3)
-Do not trust very much   (2)
-Do not trust at all   (1)

Appendix 2

Seven Aspects of Human Well-Being in World Values Survey, Wave 6 (2010-14)

1. Taking all things together, would you say you are:
-Very happy   (4)
-Rather happy   (3)
-Not very happy   (2)
-Not at all happy   (1)

2. All in all, how would you describe your state of health these days?
-Very good   (4)
-Good   (3)
-Fair   (2)
-Poor   (1)

3. All things considered, how satisfied are you with your life as a whole these days? (1 to 10 scale)
-Completely dissatisfied   (1)
-Completely satisfied   (10)

4. How much freedom of choice and control do you feel you have over the way your life turns out? (1 to 10 scale)
-No choice at all   (1)
-A great deal of choice   (10)

5. How satisfied are you with the financial situation of your household? (1 to 10 scale)
-Completely dissatisfied   (1)
-Completely satisfied   (10)

6. How proud are you to be [Nationality]?
-Very proud   (4)
-Quite proud   (3)
-Not very proud   (2)
-Not at all proud   (1)

7. During the past year, did your family
-Save money   (4)
-Just get by   (3)
-Spent some savings and borrowed money   (2)
-Spent savings and borrowed money?   (1)

Referees

The Editorial Board of *Artha Vijnana* thanks the following persons who have acted as referees for the articles received during 2023.

Author Index to Volume LXV (2023)

Author	Month and Year	No.	Page No.
Ananya Radhakrishnan and Namrata Singha Roy, *Gig Economy Workers' Livelihood: A Qualitative Study of Ride-Hailing Platforms in Bangalore City, India*	June 2023	2	171
Antara Dhar, *Financial Conditions of Elderly People in Different Regions of India*	December 2023	4	409
Anurag Vinaykiran Bavaria, *Aggregate Economic Activity: Measuring the Unmeasurable*	March 2023	1	78
Anurekha Chari Wagh, *Widowhood and Women Farmers: Structural Inequalities and Negotiation Strategies*	June 2023	2	188
Apurva Apurva, *Discovering Boundaries, Building Dialogues: Historical Sociology, Economics, and the Evolution of the Dominant Caste in Western India*	June 2023	2	133

Author	Month and Year	No.	Page No.
Arvind Awasthi and Siddharth Shukla, *Growth of Non-Banking Financial Sector in India: Trend and Determinants*	September 2023	3	247
Ashima Gupta, *Comprehending Urbanization, Urban Schemes and Urban Villages in Contemporary India*	March 2023	1	90
Dakrushi Sahu, *Gendered Patterns of Unpaid Care Work Distribution in India: An Empirical Exploration from First Large Scale Time Use Survey 2019*	September 2023	3	268
Devender and Kirti, *Taxonomic Evaluation of Health Infrastructure and COVID-19 Situation in India with Special Reference to Haryana State*	September 2023	3	324
Gautam Kumar, *Caste and Enterprise Ownership: Emerging Trends and Diversification in India*	December 2023	4	424
K. Jafar, *Migration-Led Development in Kerala: Looking Beyond Growth and Remittances*	June 2023	2	153
Kranti Kapoor, *Education and Intergenerational Mobility*	March 2023	1	1
Mallika Sinha and Rama Pal, *Regional Disparity and Convergence in Learning among Rural Children: An Analysis of Indian States*	December 2023	4	351
Manmohan Agarwal and Neha Betai, *Intra-Industry Trade in Manufactured Goods: A Case of India*	March 2023	1	18
Narava Siva Durga Rao, *Comparative Analysis of Public Debt Sustainability in Andhra Pradesh and Telangana*	September 2023	3	289
P. Devi Priya, *The Gap between Increasing Life Expectancy and Healthy Life Years with Reference to Selected Indian States*	June 2023	2	202
Parwinder Kaur and Suraj Sharma, *The Role of Tertiary Education and Good Health in Determining Female Labour Participation in India*	March 2023	1	52
Pesala Peter and I. Maruthi, *Role of MGNREGA in Creating Assets and Enhancing Agriculture and Allied Activities in Karnataka*	December 2023	4	392
Priyanka Dasgupta and Subrata Mukherjee, *Health Shocks and Vulnerability to Poverty in India*	September 2023	3	308
R.S. Deshpande, Vikas Abnave, Khalil Shaha and Ashish Andhale, *Contributions of Gokhale Institute of Politics and Economics on Studies in Co-operation*	September 2023	3	215

Title Index to Volume LXV (2023)

Books Reviewed Index to Volume LXIV (2022)

R.B.R.R. Kale Memorial Lectures at Gokhale Institute of Politics and Economics

+ 1937   Modern Tendencies in Economic Thought and Policy by V.G. Kale

     1938   The Social Process by G.S. Ghurye

* 1939   Federation Versus Freedom by B.R. Ambedkar

+ 1940   The Constituent Assembly by K.T. Shah

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* 1942   A Plea for Planning in Cooperation by V.L. Mehta

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+ 1944   Economic Policy by John Mathai

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     1950   Policy of Protection in India by R.L. Dey

     1951   Competitive and Cooperative Trends in Federalism by M. Venkatrangaiya

     1952   The Role of the Administrator: Past, Present and Future by A.D. Gorwala

+ 1953   Indian Nationalism by Laxmanshastri Joshi

     1954   Public Administration and Economic Development by W.R. Natu

+ 1955   Some Thoughts on Planning in India by P.C. Mahalanobis

     1956   Reflections on Economic Growth and Progress by S.K. Muranjan

     1957   Financing the Second Five-Year Plan by B.K. Madan

+ 1958   Some Reflections on the Rate of Saving in Developing Economy by V.K.R.V. Rao

     1959   Some Approaches to Study of Social Change by K.P. Chattopadhyay

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     1974   India's Strategy for Industrial Growth: An Appraisal by H.K. Paranjape

     1975   Growth and Diseconomies by Ashok Mitra

     1976   Revision of the Constitution by S.V. Kogekar

     1977   Science, Technology and Rural Development in India by M.N. Srinivas

     1978   Educational Reform in India: A Historical Review by J.P. Naik

     1979   The Planning Process and Public Policy: A Reassessment by Tarlok Singh

* Out of Stock   + Not Published   No lecture was delivered in 1947 and 1970

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