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**Entangled Basic Capabilities & Social Cohesion in India: Measuring
Exclusions, Impoverishments and Distances**

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Entangled Basic Capabilities & Social Cohesion in India:

Measuring Exclusions, Impoverishments and Distances

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Abstract

The paper 'Entangled Basic Capabilities and Social Cohesion in India' talks about the issues of exclusion across social groups of Scheduled Castes and Scheduled Tribes in India, and quantified the exclusion, post a critique of the current methods and measures. An Exclusion Gap Index (EGI) has been introduced to remedy the concerns of measurement of exclusion and to bring to notice the relative deprivation concerns of discriminated social groups, as against the benchmark groups, in order to attain an egalitarian society. The decomposable measures of Gini coefficient have been analyzed, but critiqued due to their homogeneity, and the lack of representation of the extent of the problem of exclusion. The literature and the preliminary analysis states that there is an achievement gap between others/ general population and the Scheduled Castes and the Scheduled Tribes, which has been explicitly quantified with an EGI, which reflects the issues of exclusion.

Keywords: Social Exclusion, Social Inequality, Poverty, Exclusion Gap Index, Capabilities Approach, Basic Capabilities

Entangled Basic Capabilities and Social Cohesion in India:

Measuring Exclusions, Impoverishments and Distances

Social cohesion and economic growth have emerged as crucial factors determining development process of a region. While the former is oriented of socio-cultural milieu, distribution of benefits of growth, the access and utilisation of opportunities and availability of space largely; the latter is driven by forms of economic transformations. The idea of inequality and poverty has largely been seen as a process of income and economic deprivation; even the social inequalities have been understood only from the point of view of the income. This in turn has influenced our understanding of exclusion as the concept goes beyond the barriers of economic inequalities and encompasses the deprivations in the access to individual freedoms that are required to attain human development.

The social inequality and exclusion that exists in different South Asian societies, exhibits common cultural and social characteristics, which is very different from many other groups of countries across world (Seth 2004). The societies in South Asia are distinct because of the existence of a social stratification that involves caste-hierarchy which is entrenched in formation of institutions and opportunities therein. The exclusionary structures in South Asia imply that social segregation and cultural deprivation is a *cause* of poverty and not its consequence, and that social groups and inequalities become the cause of the existence of rampant poverty. In Sub-Saharan Africa and South Asia 89% of the employed population earn less than US\$2 per day⁴. Having no work at all – either poorly paid or informal – is also an important aspect of the economic dimension of exclusionary processes in all regions of the world.(Popay, et al. 2008).

The economic deprivation of the socially discriminated groups is not random, but is historically driven and contemporarised by continued exclusion and marginalisation.

India has an interesting geographical space as well as a unique demographic composition, such that the achievements in terms of economic and human development indicate a large amount of variations. The SC/ST are excluded from the economic and social processes in India, especially in the rural areas, where the presence of exclusion becomes a bigger problem since they fall farther away from the relative benchmark achievements of the Others in the population. As per the India Exclusion Report 2014-15, 59% of the Dalits are employed as labourers in Rural India, 46.5% of the Adivasis are falling in the same category, as against the overall rural population in which only 40% of the individuals are labourers. It is clear that the average number of people employed as labourers in Rural India in 2009-10 are driven by the Dalits and Adivasis, implying a lack of employment opportunities for the excluded groups¹. In fact, these facets of ‘social overlapping with the economic’ is glaringly evident in the South Asian context.

The issue of social exclusion from the human development lens has been raised to highlight the Sustainable Development Goal 10 of reduced inequalities includes sub-goal 10.2 that raises the concern of social inequalities and how they deepen the existing distributional issues. It recognizes the importance of social inequalities as a crucial impeding factor in tackling overall inequalities in development. Tackling the SDG 10.2 will have a systematic impact in not only transforming social relations and prejudices, but also address trickle-down benefits of economic growth process. This paper argues in the context of pervasive inequalities, tackling exclusions in

¹Existing evidence shows that attainment of literacy rates which are as low as 63.8 per cent for Bihar and as high as 93.9 per cent for the state of Kerala, there are visible variations across the regions (DISE 2014-15).

capabilities would have a sustainable impact on the human development as well as contribute in the economic growth process.

Sen argues that social exclusion occurs through a process of alienation from economic, social, cultural and political processes among a group of individuals as it pervades a range of social relations. Ultimately to the Aristotelian understanding, social exclusion through the capabilities lens relates to the inability to interact with others elements (people and institutions) be part in the life of the community. Collective capability failures, in turn also tend to limit living opportunities (Sen, 2000)². Access of opportunities reflects both failures of formation of capabilities as well as a cause for several other forms of deprivation. The problem of social exclusion, can thus be seen as a capability failure. Such an approach to poverty enables explaining historical variations in emphasizing the role of relational features in the deprivation of capability and thus in the experience of poverty.

An equally important interpretation of the social exclusion is its linkages to inequities in society. The presence of vast inter-generational and intra-generational inequalities, hinder possibilities of equal opportunities for individuals in society. The present paper focuses on social exclusion as the presence of intra-generational inequalities and horizontal inequalities. Stewart (2010) classifies inequalities into vertical and horizontal inequalities. 'HIs are inequalities among groups of people who share a common identity. Such inequalities have economic, social, political and cultural status dimensions. Horizontal inequality differs from vertical inequality (VI) in that the latter is a measure of inequality among *individuals* or *households*, not *groups*- furthermore, measurement of VI is often confined to income or consumption'. The pervasive

² Amartya Sen (2000), "Social Exclusion: Concept, Application, and Scrutiny", Social Development Papers No. 1, Office of Environment and Social Development Asian Development Bank June 2000

presence of any form of inequality: (vertical/horizontal) causes inequality traps, wherein, inequalities in one form of capability would accentuate inequalities in other parameters. For example, an inequality trap may thus prevent future generations of young girls and women from attaining education, restricting their probable participation in the labour market, and reducing their ability to make free, informed choices and undermining their ability to realize their potential as individuals.

The present paper aims to explain relative deprivation as reflecting exclusion for rural India using the using connotations: capabilities and functionings, as proposed by Amartya Sen and advanced by Martha Nussbaum³. The aim of the measure is to capture the absolute and the relative deprivation of the SC/ST with respect to the goalpost capability attainment by the “other/general” population, and the exclusion gap index measures the distance of the capabilities attained by scheduled caste from the others, and the distance of the scheduled tribes from others.

The next section talks about the concept of social exclusion, and how exclusion as a concept is explained taking the capabilities approach across various social groups, with the focus on measurement of the exclusion via an exclusion gap index. Section 3 talks about the methodology adopted and the data sources used for the same. Section 4 explains the analysis on how exclusion has taken place for social groups in the rural part of India, for the Scheduled Castes and Scheduled Tribes. The section 5 concludes the paper with the a measurement tool for exclusion for SCs and STs in rural India, across the states, and the reflection of evidence of exclusion of SCs and STs in rural India.

³See Sen (1992), *Inequality Re-examined* & Nussbaum (2011), *Creating Capabilities: The Human Development Approach*

2. The concept

Social exclusion approach to poverty emerged as an alternative to the quantitative methodologies. The term ‘social exclusion’ (SE) was originally used in France in 1974 to refer to the various categories of people who were unprotected by social insurance at the time but labelled as “social problems”- “mentally and physically handicapped, suicidal people, aged invalids, abused children, substance abusers, delinquents, single parents, multi-problem households, marginal, asocial persons and other social ‘misfits’”.⁴The European perspective of social exclusion largely viewed the presence of poverty as the denial of equal social rights. It focussed on the process through which individuals or groups are wholly or partially excluded participation in the societies that they live⁵.

Even though presence of income poverty can explain individual exclusion, it may not be the only factor causing collective alienation. Amartya Sen argues being socially excluded occurs through a process of alienation from economic, social, cultural and political processes among group of individuals as it pervades a range of social relations. Equitable access to opportunities would then be determined by factors that are constitutively a part of capability deprivation as well as instrumentally a cause of diverse capability failures.⁶Nussbaum specifies capabilities are not limited to capabilities are not limited to the capabilities solely residing inside of a person, but also the freedoms or opportunities created by a combination of personal abilities and the economic, social and political environment, which are the ‘substantial freedoms’ (Nussbaum

⁴ See Lenoir (197/1989). “Les Exclus: Un Francais sur Dix”. Paris: Editions du Seuil and (Gore, et al. 1995, p.1)

⁵Commission on European Communities (1993), Atkinson (1998) and Room (1999)

⁶For more about gender based exclusions see Fraser (1997), Kabeer (2000) and Thorat & Newman (2010)

2011). The embedded social milieu determines the process freedom of individuals/ groups are wholly or partially from full participation in the society in which they live (Thorat and Newman 2010, p.3) and the presence of hierarchies within them continues the dependence on traditional mental modes that operate at sub-optimal levels. They have identified Scheduled Castes and Scheduled Tribes as the socially discriminated groups in the country

Against this backdrop measuring inequalities that capture exclusion and deprivation is a very complex exercise. There is need to include indicators of human freedom that are common to all the groups yet, is nuanced way to understand the differences through which it occurs. Using the human development approach, Exclusion Gap Index (EGI_i) can be defined as a measure that captures inequalities in capabilities and relative deprivations across heterogeneous population groups. It is a measure of multidimensional vertical inequalities(VI). The weighted Exclusion Gap Index (EGI_w) provides population-weighted estimate that reflects the presence of horizontal inequalities of the within in each sub-group population.

Theoretically, the term EGI has ethical dimensions as well as methodological foundations:

1. It represents the distribution range of capabilities across groups and is thus, an index of equity. Equity is measured in terms of achieved functionings across range of capabilities. The comparison includes both material and non-material capabilities.
2. The benchmark of exclusion is derived from the egalitarian view of understanding equality in the society, and not aim for perfect utopia, but to achieve equality amongst all (social) groups. The benchmark estimation is based on the achieved capabilities by 'others' or who in most cases are the majority population group. Thus, the EGI is a benchmark index of excluded group *viz-a- viz.*, 'others' in the region.

3. EGI is a generalized entropy measure that can be decomposed into sub-groups and has properties of additive decomposition. As highlighted by Shorrocks (1984), any decomposable inequality index, as long as it continuous, strictly increasing and preserves the origin. EGI is measure that can be decomposed across income and non-income categories and also aggregated to achieve the overall level of social exclusion.

The EGI_i index is as follows:

$$EGI_i = \sum_{i=1}^n \left(\frac{o_i - e_i}{o_i} \right) (1) \text{ where } i = 1, 2, 3, \dots, n$$

where, e_i refers to the excluded social group, the scheduled caste and the scheduled tribes, and o_i refers to the Others social group, which has been taken as a relative benchmark for the n th state.

The EGI is calculated for basic capabilities captured through income and non-income indices.

The EGI_i reflects of the extent of social exclusion i.e. the disparity between the social groups in terms of capability attainments. The overall EGI is an average of estimates obtained across all states.

$$EGI_i \in (\pm\infty) \text{ where } 0 \text{ represent presence social cohesion or perfect equality} \quad (2)$$

The negative sign indicates that the discriminated group⁷ does not face exclusion in achieving capabilities but there are exclusion groups among social group in that i th state. Conversely, the positive sign indicates the presence of exclusion in achieving basic capabilities among the groups.

⁷Following Thorat and Newman (2010) we consider SC and ST groups as discriminated groups in the current analysis. However, EGI is amenable to alternate estimations as well.

3. Data and Methodology

The indicators are selected for the Basic Capabilities to reflect human development dimensions, which are: Economic, Education and Health & Sanitation. The indicators are chosen based on the **Dominance Principle** i.e. only the indicators which showed enough evidence and were strong enough in their representation of the fact of the matter were taken into consideration; the indicators which had less representation were not taken into consideration. Principal Component Analysis (PCA) was also carried out to test the indicators within each sub-dimension to check if the components can be taken to create composite indices to ensure the strength of the basic capabilities index, consisting of economic, health & well-being and education dimensions. The PCA was carried for indicators within each dimension. The indicators have been selected based on a Principal Component Analysis, and categorized based on income factors, non-income factors (economic) and other non-income factors, all under the purview of basic capabilities. PCA ensured that no indicator was dropped, and Eigenvalues were generated to ensure creation (See Table 1 for details and Table 2 for details of data sources).

The analysis comes with its own set of limitations data availability to enable a more substantive analysis of social exclusion and vertical and horizontal inequality. Some of the aspects are presented below:

1. Population Group Segregation: The analysis is done to assess the extent of exclusion in the rural areas of India, which is done by assessing the extent of social and spatial inequality and the overlapping inequality. The division of the groups has been unable to assess the population in its entirety because of lack of availability of data. The three groups taken into consideration are: Scheduled Castes, Scheduled Tribes and Others. These definitions/ groups are taken from the definitions available in the Census in 2011, where the Other Backward Classes(OBCs) and the General category are put together in the 'Other' Category. This category definition has been

followed throughout the analysis. The problem thus, is that there is lack of data for the ‘Other Backward Classes (OBC)’ causing a missing link in the analysis, since OBC’s extent of exclusion/inclusion is left out or overlapped with the general category.

The uniformity is missing in the following indicators, where ‘Others’ data has been taken for just the general population and thus, the representation of the Other Backward Classes has been completely missed out.

2. *Rural-Urban*: The data analysis is constraint because some indicators under the purview of education do not have urban-rural separate indicators. The indicators which are available for the combined rural and urban population are as follows: Enrolment Rate (Primary), Enrolment (Upper Primary)

3. Lastly, data is not available for all the states, especially from the DLHS-4 survey rounds. (Missing States: Jammu, Bihar, Jharkhand, Odisha, Rajasthan, Gujrat, Uttarakhand, Uttar Pradesh, Chhattisgarh, Meghalaya)

4. Estimating Basic Capabilities among Social Groups Among Indian States

To understand the problem of social exclusion, this paper takes a human development lens to understand the very basic faces which should be equally available to individuals and households from all groups. Taking a human development perspective inherently takes into consideration that the individuals and households have the capabilities and functionings to lead a life with a decent standard of living, and thus their inherent disparity arising out of social groups creates gaps and distances, culminating into social exclusion.

Basic capabilities for social groups are estimated using the HDI methodology. The approach used for each indicator to convert into an index is:

$$Index(I^*) = \frac{\{X_{s,j} - X_{min}\}}{\{X_{max} - X_{min}\}} \quad (3)$$

Where the value(s,j) refers to the value given for a particular social group and a particular state, X_{max} refers to the goalpost set, with reference to the highest indicator value obtained by a State and the social group social groups, and X_{min} refers to the least number across social groups and districts. (UNDP, 2015). These three sub-indices are for $Economic_{s,j}$, $Education_{s,j}$ and $Health_{s,j}$.

$$BCI_{s,j} = \sqrt[3]{Economic_{s,j} * Education_{s,j} * Health_{s,j}} \quad (4)$$

The basic capabilities index reflects the extent of income and non-income capabilities of social groups across states (See Figure 1). Income equality has been considered as an extremely crucial measure of distribution of well-being. However, basic requirements for any household or individual to live in the society with dignity, as per Sen's definitions is equally dependent on the access of assets like land and secure employment opportunities and expansion of education and health & well-being related capabilities.

The estimation of basic capabilities reflects that 'Others' have higher BCI values compared to the SC and STs. The BCI values for Others ranged between 0.160 to 0.536, whereas for SC it was 0.219 to 0.329 and STs it was 0.166 to 0.404 (See Figure 1). While the minimum for Others appears to be similar to the STs, this is from Nagaland where Others constitute a smaller population group. Interestingly, the BCI status of SC and ST is lowest in West Bengal at the all-India level and relatively better-off in Haryana and Nagaland, respectively. This is a corroboration of existing empirical evidence of are doing relatively better than the SCs and STs in composite index. However, SCs across the nation have a tendency to follow the Others,

indicating that they are catch-up. However, the same does not follow for STs. Interestingly in select North-Eastern States where, STs are a dominant social group, they better basic capabilities.

Income Factor for Human Development

Even though the terminology of social exclusion is beyond the framework of poverty, there is a tendency for social discrimination to be reflected in the income as well. The analysis considers the indicator – Households that have the highest earning member earning more than Rs.10,000. The analysis shows that Others tend to be economically better off, with regard to income of the household in the rural India (See Figure 2). There are *two* notions of deprivation emerge in this regard: first, Others are better off than the SC's and ST's in most of the states, and second, exclusion is relative to the region, implying that even if SCs and STs are doing well in Himachal Pradesh. However, in Odisha due to relatively smaller population share, SC and ST fair poorly. Such state specific outcomes are extremely crucial in addressing social exclusion. Therefore, in terms of income earning capabilities of these social groups, there are variations across groups and states.

Non-Income Factors for Human Development

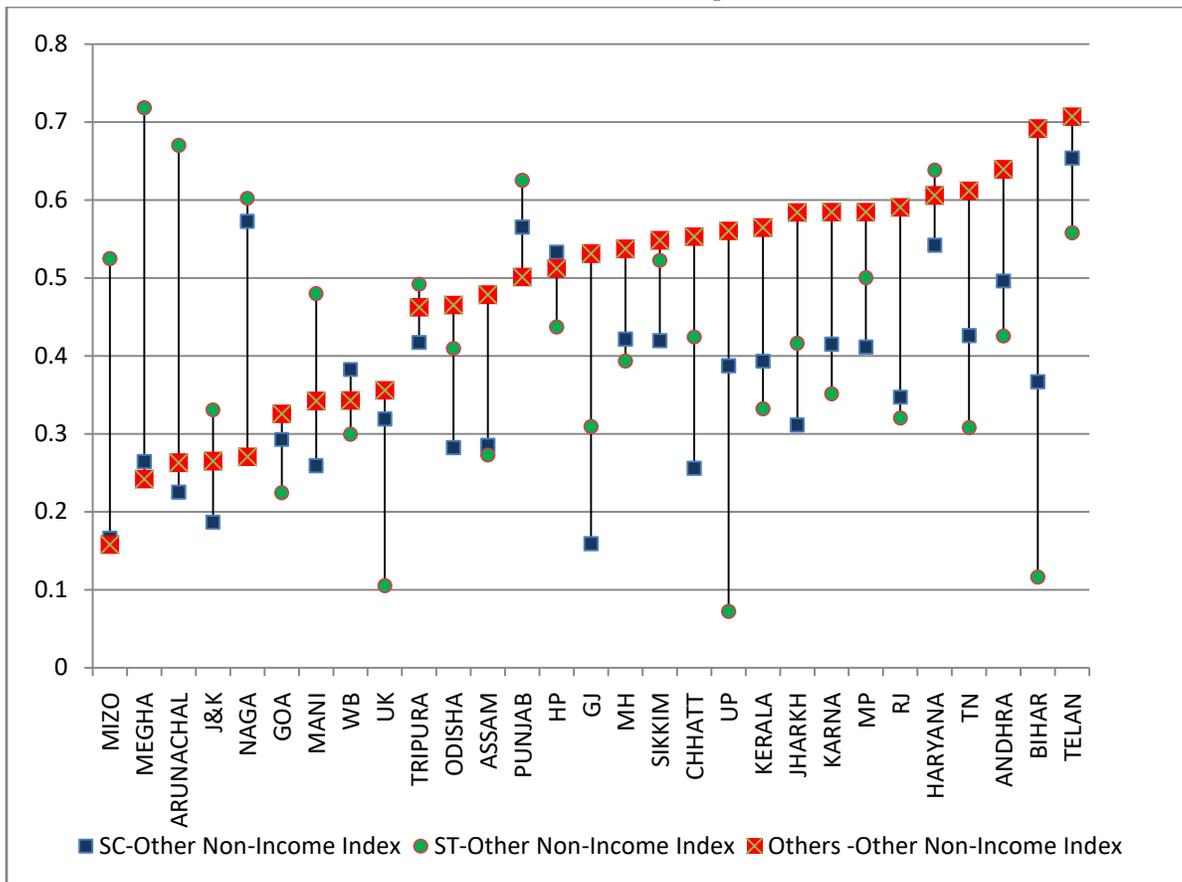
An analysis of non-income factors such as sources of employment and ownership of assets highlight the role of other economic factors in explaining inequalities. For example, State directed reservation policy has worked effectively as there is barely any gap between the SCs, STs and Other across the states. In States like Mizoram and Nagaland, SCs have been doing better than the Other population as well. Also, asset ownership patterns shows that land ownership patters are skewed in favor of Others. As land ownership of Others' increases, wealth deprivation of SCs and STs worsens.

A perusal of Figure 3 shows that the non-income dimensions moves in tandem with the pattern in income indicator, to understand exclusion of SCs and STs. As the Others are better-off, the gap between Others and SCs and STs seems to be rising. Unfortunately, this shows a very bleak scenario for the excluded groups implying that historical alienation feeds into the current asset-ownership. However, that land ownership is one of the dominant factors. The non-income index remains the lowest for SCs and STs in states of Odisha and Kerala, whereas it is the highest for Others in states that are agriculture dominated states like Haryana and Punjab. The missed opportunity of land reforms in the pre-liberalisation seems to be costing worsens of economic inequality of the most social groups.

Role of other Non-Income dimensions of Human Development

Education & Health/Well-being outcomes of SCs and STs are at a distance from the Others (Figure 4). A composite measure of education reflecting a human development component is misleading, since it is dominated by the majority population in the enrolment indicator. Yet, it can be seen that SCs and STs tend to move strongly with the Others across the states, in terms of literacy rate. The well-being is dominated not just by access to health facilities and the health outcomes for the individuals, but instead it is affected by the sanitation and access to water (improved), as it has a huge impact on health as well.

Figure 4 Other Non- Income Factors Index Across Social Groups and States⁸



Looking at the indicator reflecting usage of improved toilet facility, Others have better access to sanitation facilities. The rural population is dominantly reflecting how others are able to gain access to improved sources of water, but the access to basic resource water. The vaccination index reflects a story of movement towards social equality, since there is little or no gap between the others and SCs, STs, in terms of the capabilities to access immunization facilities. This can be arising due to the universal immunization policies that have been very well

⁸ Computed using data from DISE 2011, DLHS 2012

implemented in the rural areas of India in a socially equitable manner, ensuring access to everyone. The evidence of other non-income dimensions capturing education and health dimensions the gap between the social groups is wide. It shows that health, well-being and social inequalities are seeping in deeper within the social structure.

5. Estimation of Gini Index and Comparison with the Exclusion Gap Index.

The Basic Capability Index hinted towards sharp disparities in outcomes between Other, SC and ST population. Thus, to explain the level of disparity, the Gini coefficients were estimated using Pyatt's Inequality decomposition methodology. This helped in estimating aggregate vertical inequality. The average Gini coefficients of other non-income dimension is lowest at 0.207, followed by income dimension with 0.384 value and is the highest for non-income dimension at 0.398.

The social group inequality for income dimension is high for SCs and STs. Next, the non-income component is able to reflect that employment and assets ownership are also concerns for inequality within the excluded groups, implying that the economic aspect in its entirety remains unequal, not only across social groups but also within the social groups. This creates difficulties in capturing exclusion, design policies to cater to the existing inequalities. The other non-income factors are able to reflect that the inequality within SCs and STs also remains a matter of concern, where there is inherent deprivation across these groups overall, but also an underlying inequality within the group, preventing them from equally benefiting from affirmative policy actions targeted for excluded groups.

The Gini coefficient, however does not provide a disaggregated estimate of inequalities. The problem remains that the essence of exclusion or the utility of a representative

number does not come to life with these inequalities measure, extending the problem of measurement in the domain of inequalities. This was further corrected using the EGI estimation. A perusal of Table 4 shows that Others to SC gap in the income dimension is 0.47, the non-income it 0.49 and other non-income dimension it is 0.18. Comparatively, for the Other to ST the gap is 0.49, 0.33 and 0.13, respectively. Note that the other non-income dimension seems to be lower as the indicators for immunization seem to be uniform across population groups.

With reference to the human development index, the intensity of exclusion remains quite evident for SCs with an intensity measure of 0.27, however the intensity of the exclusion gap is eroded by the presence of two states- Arunachal Pradesh and Nagaland, for STs, implying how the two states of the North-Eastern Region are dominating the status of STs human development across the nation. The ST inequality is varied and visible, especially in the states of Maharashtra, Tamil Nadu and Karnataka, where the relative status of STs Human development remains poor. The state of social inequalities for SCs and STs are quite visible through the intensity measurement done via the exclusion gap index.

SCs and STs deserve basic capabilities, and a decent standard of living, much like the 'others' in the demographics. The ability to lead a life with dignity can be quantified using human development indicators of health, education, water and sanitation. However, there is visible exclusion of SCs and STs across these domains. The composite indices have clearly stated that exclusion persists largely in the economic domain for SCs and STs both, with the overall exclusion being the most intense for SCs overall in rural India, with fragmented exclusion of STs which is regional.

There are certain indicators across the domain of human development which reflect the intensity of social exclusion of SCs and STs, and bring to fore the fact that 'exclusion' is not just

deprivation in absolute terms or in relative terms, infact 'exclusion' also should reflect how intensely they are excluded and how far off are they in the process to become equal to the benchmark of 'others' in the society. This paper approaches the problem from an egalitarian perspective, wherein, all the households and individuals across all social groups should attain the same outcome. Given the literature, there is always an aspirational benchmark setup by the society, wherein the excluded groups aspire to be more like the 'others' category. Given that standard set across the societal norms, this paper has attempted to understand the gap between excluded and the non-excluded and measure the intensity of the gap.

It is important to understand the importance of the absolute levels of human development of SCs and STs, and extremely necessary to understand their relative position, given the history of discrimination and deprivation. Yet, in order to overcome the problem of social exclusion, it is need to understand the distance of one group from another, which will inherently provide a pedestal for understanding the 'catch-up' response of the excluded in order to be at par with the societal benchmark of 'others'.

A few exclusion gap indices based on basic human development indicators have indicated the presence of intense exclusion, and has attempted to quantify the lag and intensity of the SCs and the STs in rural India. This analysis reflects that the exclusion is most dominant across India in the economic dimensions, with the average gaps and relative deprivations of excluded groups remaining across the states.

In terms of income, the STs are more excluded than the SCs. Whereas the non-income factors portray the exclusion intensity to be higher for SCs, impending on the employment accessibility and assets ownership issues across the SCs.

Income EGI

When the income EGI is calculated for SC's in India, the results are biased towards SCs due to the presence of an extreme variable i.e. SCs in Nagaland are doing extremely well, which affects the value of the variable. Therefore, SCs in Nagaland are excluded while calculating the exclusion gap index. The Economic Exclusion Gap Index for SCs in India (w.r.t. Others) is **0.39**. Whereas the Economic Exclusion Gap Index is 0.30 inclusive of the given set of states (which is only 19). On the other hand, to understand economic exclusion of the SCs and STs in rural India, we can also look at the most basic factors of income of the household, where the index reflects the households that have at least one member of the household earning more than 10,000 Rupees. The EGI is 0.47 and 0.48 for SCs and STs, implying that there is a vivid display of economic exclusion for both, SCs and STs. This is indicative of the fact that the inherent historical identity of these social groups has tendency to culminate and reflect in the access to economic resources, access to livelihood options etc, which create the realm of household income. The intensity of income exclusion, per se, indicates that the affirmative policy for creation of livelihood opportunities for SCs and STs has remained ineffective, unable to capture and solve the problem of economic inequalities across social groups, causing social exclusion to intensify.

Non-Income

Land is one of the most important factors in rural India, since it acts as a source of livelihood, as well as acts as a representative of the social structure, and the historical status of the individual/household in the society. The results show that the EGI for SCs for land is 0.58, implying intense exclusion across factors of land, implying inherent landlessness across the SCs as against the others in rural India. It also reflects land is a concern for SCs more than it is for STs. This can have two implications, one is that SCs and STs cannot be understood in an

umbrella framework, as their intensity as well as concerns of exclusion vary within the domain of human development and necessary factors to lead a life with dignity; secondly, it reflects that even though relatively the issues are more alarming for SCs with reference to land, the visible intensity of exclusion from land provision of STs cannot be ignored. Land is one of the most important factors for rural India, and thus, the exclusion across this domain reflects one of the most vital forms of exclusion under the economic exclusion facets.

In order to understand the affirmative policies directed towards the discriminated groups in the economic context, we have looked at the government employment i.e. looking at households that have any member who is a government employee, the EGI of which reflects 0.14 for SCs and 0.23 for STs. It implies that even though the affirmative policies have been created, they have been unable to reach the discriminated groups, more so, even with the limited reach with which stable employment opportunities have been generated, based on this indicator, the impact on the income exclusion clearly states that the employment opportunities created via affirmative action have not been able to generate enough income for a household for a decent standard of living.

The intensity of social exclusion across the facets of economic dimensions explains that the historical roots of exclusion have seeped through the economic factors, and continue to deepen the problem of social exclusion in rural India for SCs and STs. There is no one way to deal with the problem, because even when exclusion is a problem in a holistic sense for both SCs and STs, the paths towards inclusion and the gaps away from the 'others' in the society remain variant, which explicitly reflects that group—centred policies are the need of the hour, where the distance and intensity of the exclusion across a domain of human development is considered to ensure an egalitarian society, for all social groups.

Other Non-Income Factors

The Education EGI for SCs reflects the poor state of the discriminated groups, and how the intensity of their exclusion is visible. The Education EGI for SCs is more than STs, however, that can be largely due to the presence of north-eastern states, whose population consists of STs predominantly, and the absence of other states like Uttar Pradesh and Bihar, which consists of a large proportion of SCs. Yet, this statement is made with a disclaimer that the STs results are positively biased because of the ST-dominant states presence, and the fact that their population dominance allows for improvement education capabilities, does not imply if a larger chunk of SCs are included it will lead to lead to better outcomes.

STs have intense exclusion in economic capabilities, but due to presence of extreme education capabilities of the three states Arunachal Pradesh, Nagaland, Mizoram with large ST dominance. Education Capabilities in the three states for STs, are exceedingly differing in terms of enrolment rates, which are sky high for STs, which is 91.8 and 92.8 for primary and upper primary respectively in Nagaland, contrasting with 0.4 as enrolment rate of others in Nagaland for both the education levels.

This reflects the determination of higher outcomes of ST education due to its population dominance. However, when looked at from a singular indicator perspective, we find that literacy rates of Other remain higher for the three states, indicating that the bias in results in favour of STs comes solely from the population dominance. Therefore, enrolment rate does not act as suitable factor for understanding the intensity of exclusion for STs.

The second problem arising is the need to understand the dropout or the transition rates of the STs in the north-eastern belts, to coherently interpret if the high enrolment rates of STs leads to education capability expansion or fades as the children progress across levels of education.

The Education EGI for STs remains negative at 1.64 implying that the basic education required for human development is made accessible to STs, however, this result is largely biased due to the presence of 4 states – Nagaland, Andhra Pradesh, Mizoram and Meghalaya, where the population dominance in the enrolment indicator has led to the STs improved education performance. If the four states are removed, the exclusion gap index for education is 7.4, which is biased towards ‘others’ population dominance.

In terms of education, the EGI for education index remained biased due to the problem of population dominance being reflected in enrolment rates, however, when only literacy is looked at, we can visibly see that SCs remain intensely behind in terms of educational capabilities. Education becomes a pivotal source of drawing the discriminated and the excluded sections of the society, and to separate themselves from the process of historical discrimination. The SCs EGI for literacy is 0.23, indicating that SCs lag behind, whereas the STs EGI is only 0.05, indicating that STs have been able to access the processes of the society in order to attain the basic educational attainment for a decent standard of living. While it is a fact that literacy rate in itself is not enough to lead a life of dignity, the lesser intense exclusion shows a step towards a more inclusive development process biased towards STs more than SCs.

Educational capabilities, therefore, remain a problem for the SCs, indicating that the affirmative policies need to take place in order to provide the SCs a way out of the everyday deepening process of social exclusion across rural India.

There is hardly an exclusion intensity visible across SCs and STs in the dimension of health, water and sanitation, which is quite contrary to the literature, which states the inherent presence of social inequalities in the access to health processes and outcomes, access to water

and sanitation facilities. The reasons for the same can be tracked down to the data source of DLHS 4, and the selection of indicators.

There are other facets of human development, which primarily include the health, sanitation and access to water. Out of which, we have looked at availability and accessibility of toilet facilities of improved nature, which reflects an intense exclusion of SCs and STs, almost equally, with EGI of 0.31 and 0.37 for SCs and STs respectively. Even the most basic access to sanitation facilities indicates that SCs and STs remain rather intensely excluded from such access and process outcomes, indicating two major concerns; first is to understand whether 'access' has at least been understood in terms of 'wanting to access' by the SCs and STs, as literature indicates that there are certain cultures/traditions, that negate the usage of toilet facilities within the boundaries of the households; on the other hand, the idea of sanitation in itself seems to become a concern for SCs and STs, as this acts as a deterrent towards their human development.

6. Post Estimation of Using Kernel Density Distribution

The Epanechnikov Kernel density estimation were used to EGI estimates to arrive at both Vertical (VI) and Horizontal inequality (HI). A general EGI kernel distribution captures vertical inequalities as it is purely based on inter-group variations. Whereas, $wEGI$ reflects horizontal inequality as the weight is the share of the m th population in total M th group, i.e. intra-group inequalities causing exclusion.

It is interesting to see the distribution of the Kernel density estimates. While the non-weighted distribution is skewed towards states with relatively lesser SC groups. Exclusion seems to be extremely high in states with relatively low SC population. The bell-shaped curve rises sharply to the right and concentrates at about 1.0 level. In sharp contrast, we find that $wEGI$ declines sharply in relatively higher proportion of SC. Indicating that income inequality is

relatively low among the SC in States with high SC population. Interestingly, it can also be argued that the presence of low HI in the income dimension could also be due to the already levels of standard of living of the population group. In contrast, this cannot be argued for the STs. The bell-shaped curve with the ST is relatively wide. Some of the reasons could be relatively skewed distribution of STs in India as well as lack of integration in to the overall development process. Income deprivation of STs is particularly high in states with very low Tribal population. However, states in ST domination we find that EGI is distributed closer to the central concentration. This get further elucidated in case of *wEGI* wherein we find that intra group inequalities are relatively low in Tribal dominated states as compared other regions. Thus, in the income dimension SC are experiencing both vertical and horizontal inequality. But in case of STs it is mainly a vertical inequality issue.

Next, the distribution analysis for the non-income dimensions for SC EGI is further glaring as the inequalities are sharp both across inter and intra-group distribution. There are sharp inter-state variations in the distribution of asset holdings among the SCs. Thus, the economic well-being continues to be abject. In contrast, since STs ownership of land holdings is relatively better they seem to Kernel distribution is relatively less skewed. The dispersion is higher in case of *wEGI* indicating sharp variations in the asset holdings among the ST group.

Lastly, the only possible equalizer to achieve social cohesion, improvements in education and health capabilities, we find that kernel distribution

Conclusions.

The paper states that there is another method i.e. the exclusion gap index (EGI) which is fundamental in combining the issues of poverty and inequality to explain the problem of exclusion. The measure in itself is able to go beyond the decomposable measures of inequality, and explicitly reflect the distances and the relative deprivations in a quantifiable manner. The evidence has clearly states that there is a visible exclusion of Scheduled Castes and Scheduled Tribes in rural India, relative to the rest of the population, and the EGI and distance analysis has been able to reflect that the non-income factors are dominating the inequalities after the issues of poverty. Poverty and Income are not enough to expand on the idea of exclusion, therefore multi-dimensionality of exclusion via EGI reflects the problems of exclusion in rural India, for Scheduled Castes and Scheduled Tribes.

Despite the limitations, the analysis is still able to provide a crisp view of the extent of social exclusion of the Scheduled Caste and the Scheduled Tribes, relative to the rest of the population. The SC's and ST's are relatively worse than OBC's and General Category, or simply the General Category, and this analysis still fulfils the purpose of studying social exclusion in the rural areas. When the SC's and ST's are compared with 'Others' the General and the rest of the population does perform better in terms of access, opportunities and freedoms, therefore, 'general / Other' categories become a relative benchmark. Here, it is important to understand the entire society needs to improve and move towards more freedoms, opportunities and access, and thus move towards a more inclusive society. However, first step is to bring the excluded groups at least at par with the rest of the population. This analysis is able to represent the same idea, hence this limitation is not a very big drawback to the results.

Annexure

Part A: Tables

Table 1 Indicators for Basic Capabilities

Dimension	Indicator
Income Dimension	Percentage of Households with the highest earning member earning more than Rs.10,000 per month
Non-Income Dimension	Percentage of Households owning 2.5 acres or more land with atleast one irrigation equipment
	Percentage of Households with any member as government employee
Other Non-Income Dimensions	Literacy Rate
	Enrolment Rate - Primary to Upper Primary - Upper Primary to Higher Secondary
	Percentage of under five children who weighed more than 2.5 kilograms at birth
	Vaccinations: Percentage of children who received the following : BCG vaccine, DPT vaccine, any Polio vaccine and measles vaccine
	Water & Sanitation - Percentage of Households having access to improves sources of water - Percentages of Households having access to improves toilet facilities

Note: ¹Includes piped into dwelling piped to yard/plot, public tap/stand pipe/hand pump,/tube well/ bore well/well covered/spring tanker, cart with small tank and bottled water. (DLHS-3, 2012-13). Household having improved access to toilet facility = improved source of sanitation + flush not to sewer/septic/pit/twin pit + pit without slab + dry toilet. (DLHS-3, 2012-13)

Table 2 Data Sources

Dimensions	Sources
Income Dimensions	1. Socio-Economic Census Survey 2011-12
Non-Income Dimensions	1. Socio-Economic Census Survey 2011-12

Other Non-Income Dimensions	<ol style="list-style-type: none"> 1. District Information System for Education 2011 2. District Level Household Survey- 4 (2012-13) 3. Census 2011
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Table 3 Gini Coefficient Reflecting Inequality a) within Social Groups b) Overall

	Income Index	Non-Income Index	Other Non-income Factors Index
SC	0.401	0.288	0.19
ST	0.4	0.371	0.225
Others	0.293	0.4	0.168
Overall	0.384	0.398	0.207

Source: Computed by Authors

Table 4 Exclusion Gap Index for India

Sub-Dimensions	SC	ST
Income Index	.47	.49
Non-Income Index	.49	.33
Other Non-Income Factors Index	.18	.13

Notes: Excluding Meghalaya in other non-income factors for ST

Source: Computed by Authors

Table 5 Exclusion Gap Index for India Across Basic Capabilities

Exclusion Gap Index (From Individual Indices)		
Sub-Dimensions	SC	ST
Income Index	0.47	0.49
Land Index	0.58	0.24
Employment Index	0.14	0.23
Economic Index	0.39	0.31
Literacy Index	0.23	0.05
Education Index	0.31	-1.65
Sanitation Index	0.31	0.37
Health & Well-being Index	0.06	0.12
Basic Capabilities Index	0.27	0.14

Notes: Economic Index for SC Excluding Nagaland, Basic Capabilities Index Excluding Nagaland and Andhra Pradesh for ST

Source: Computed by Authors

Table 6 Exclusion Gap Index for SCs and STs Across States

states	Exclusion Gap Index of Income Index		Exclusion Gap Index of Non-Income Index		Exclusion Gap Index of Other Non-Income Factors Index	
	SC	ST	SC	ST	S C	ST
J&K	0.1556	0.4265	0.0021	0.5023	0. 2955	- 0.2490
HP	0.4177	0.2262	0.5045	- 0.1320	- 0.0409	0.14 63
PUNJAB	0.7357	0.7125	0.8 125	0.5829	- 0.1285	- 0.2484
HARYANA	0.6797	0.4444	0.8444	0.6700	0. 1048	- 0.0540
BIHAR	0.7310	0.5476	0.7661	0.5709	0. 4695	0.83 18
WB	0.4750	0.6328	0.4127	0.6034	-	0.12

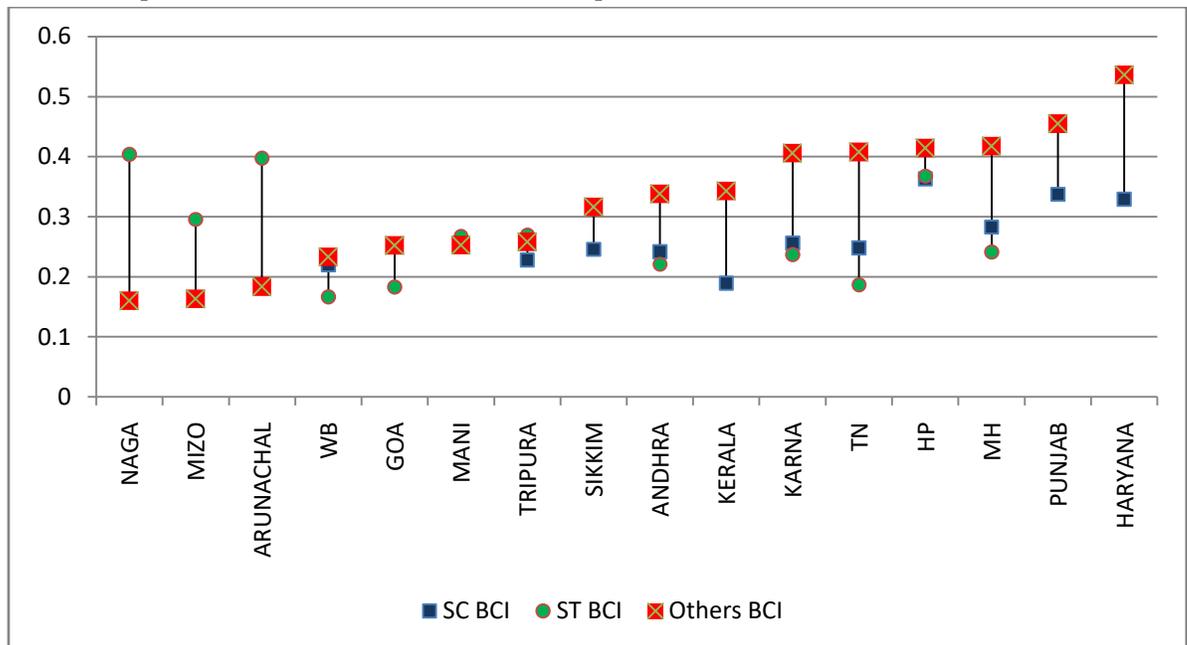
					0.1165	55
JHARKH	0.2856	0.4930	0.3953	0.3161	0. 4666	0.28 67
ODISHA	0.7045	0.8881	0.6790	0.7691	0. 3932	0.11 93
RJ	0.6304	0.6179	0.6054	0.4444	0. 4122	0.45 74
GJ	0.4734	0.6795	0.4208	0.5342	0. 7008	0.41 73
MH	0.4780	0.7244	0.6043	0.7128	0. 2154	0.26 77
GOA	0.1915	0.4913	0.0358	- 0.0882	0. 1013	0.31 07
ANDHRA	0.4275	0.5604	0.4509	0.2700	0. 2238	0.33 41
KARNA	0.5230	0.4891	0.5757	0.4510	0. 2897	0.39 87
KERALA	0.6440	0.6785	0.7620	0.6202	0. 3034	0.41 15
TN	0.5444	0.8135	0.6213	0.5355	0. 3032	0.49 61
TELAN	0.4640	0.4099	0.4315	0.2259	0. 0745	0.21 03
UK	0.5765	0.4366	0.6227	- 0.2889	0. 1032	0.70 42
UP	0.6118	0.5511	0.5939	0.5093	0. 3084	0.87 13
CHHATT	0.4792	0.5402	0.4376	0.5452	0. 5375	0.23 26
MP	0.7197	0.8578	0.5574	0.7063	0. 2960	0.14 36
SIKKIM	0.4477	0.1107	0.0214	- 0.2249	0. 2347	0.04 63
ARUNACHAL	0.4963	0.0822		- 0.5886	0. 1436	- 1.5495
NAGA	-1.1700	-0.4463		- 4.8001	- 1.1171	- 1.2265
MANI	0.1365	0.2299	- 0.5326	0.6549	0. 2430	- 0.4034
MIZO	-0.1327	-0.1785			-	-

					0.0517	2.3252
TRIPURA	0.2237	0.0805	0.1519	-0.0165	0.0975	-0.0643
MEGHA	-0.0123	0.5011	0.3577	0.5325	-0.0923	-1.9703
ASSAM	0.1431	0.0089	0.1683	-0.2318	0.4039	0.4296

Source: Computed by Authors

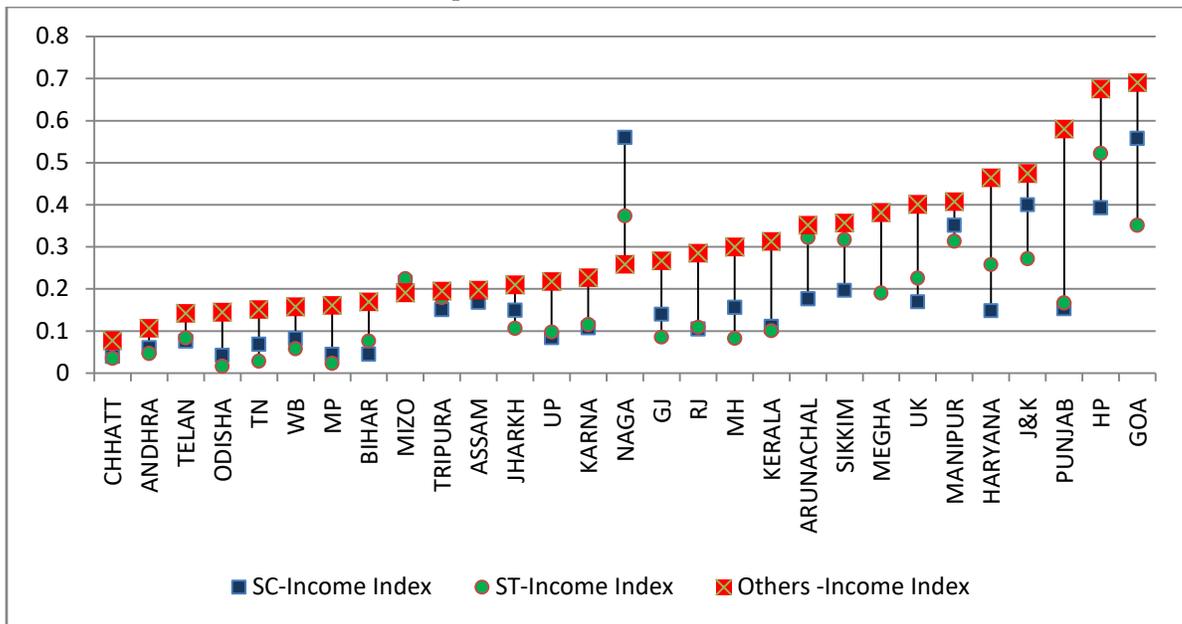
Part B: Graphs

Figure 1 Basic Capabilities Index Across Social Groups



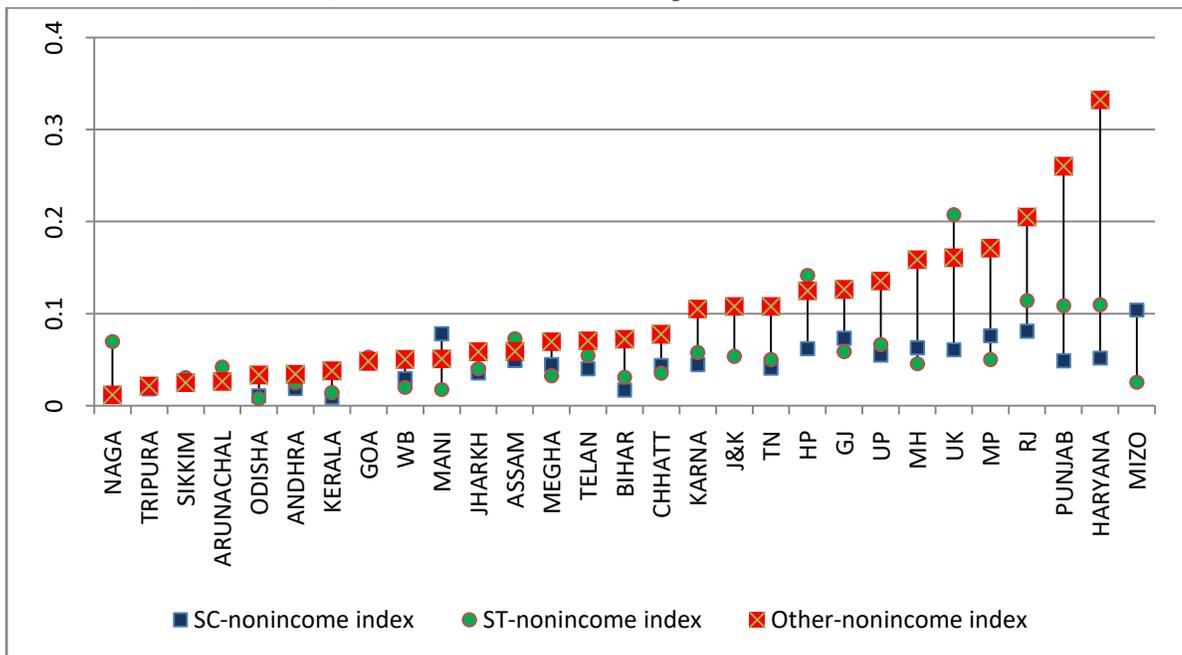
Source: Based on Computation by Authors

Figure 2 Income Index Across Social Groups and States



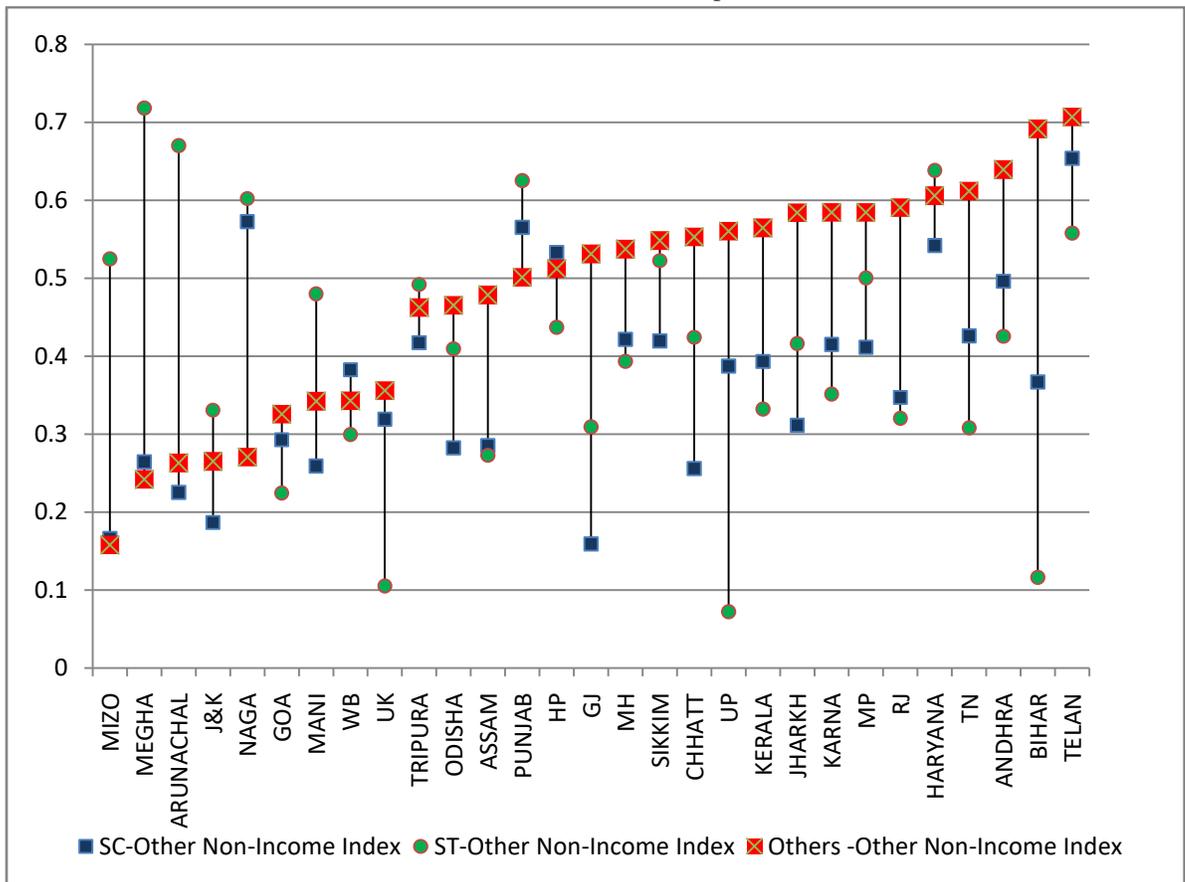
Source: Based on Computation by Authors

Figure 3 Non-Income (Economic) Index Across Social Groups and States⁹



Source: Based on Computation by Authors

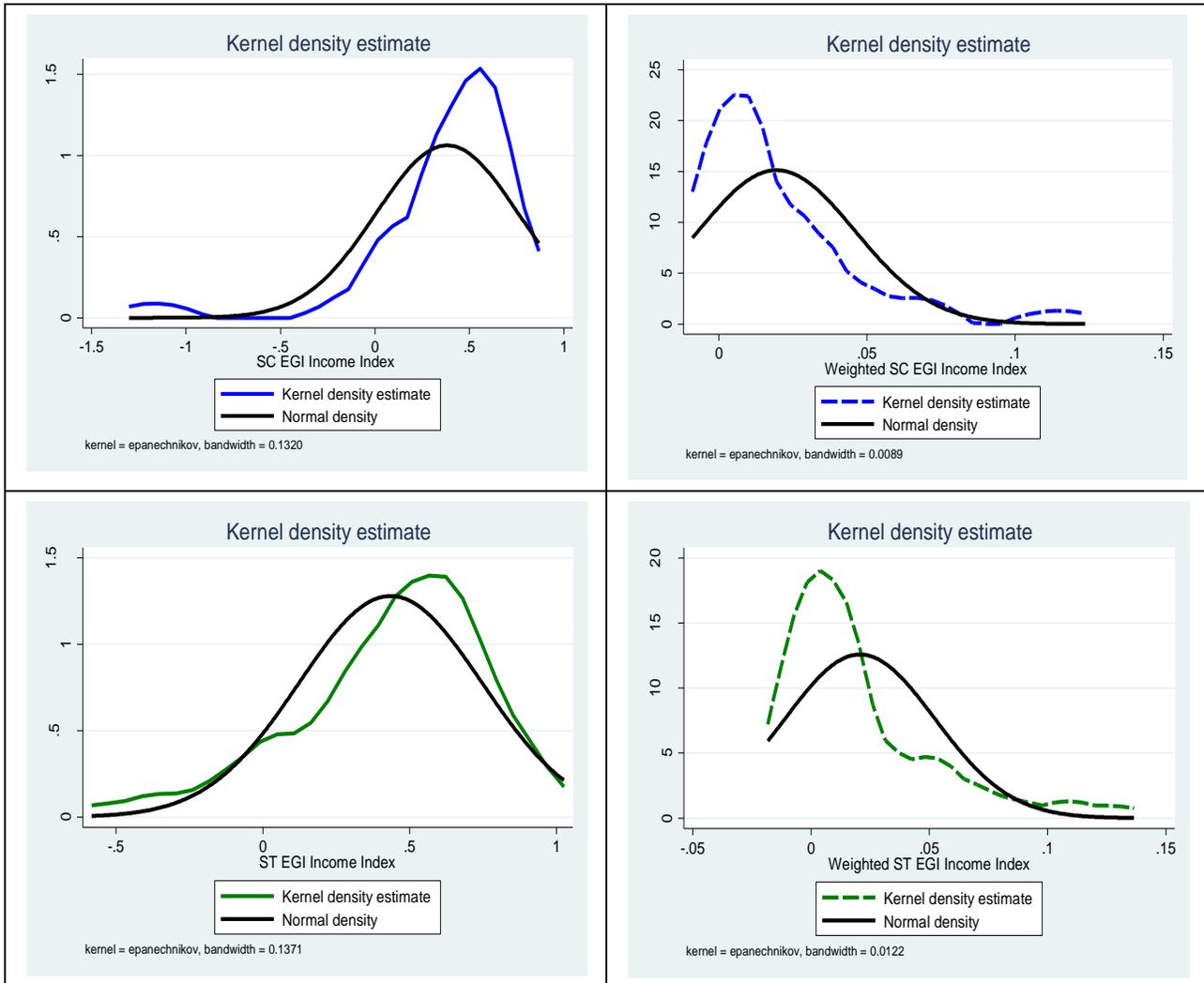
Figure 4 Other Non- Income Factors Index Across Social Groups and States



Source: Based on Computation by Authors

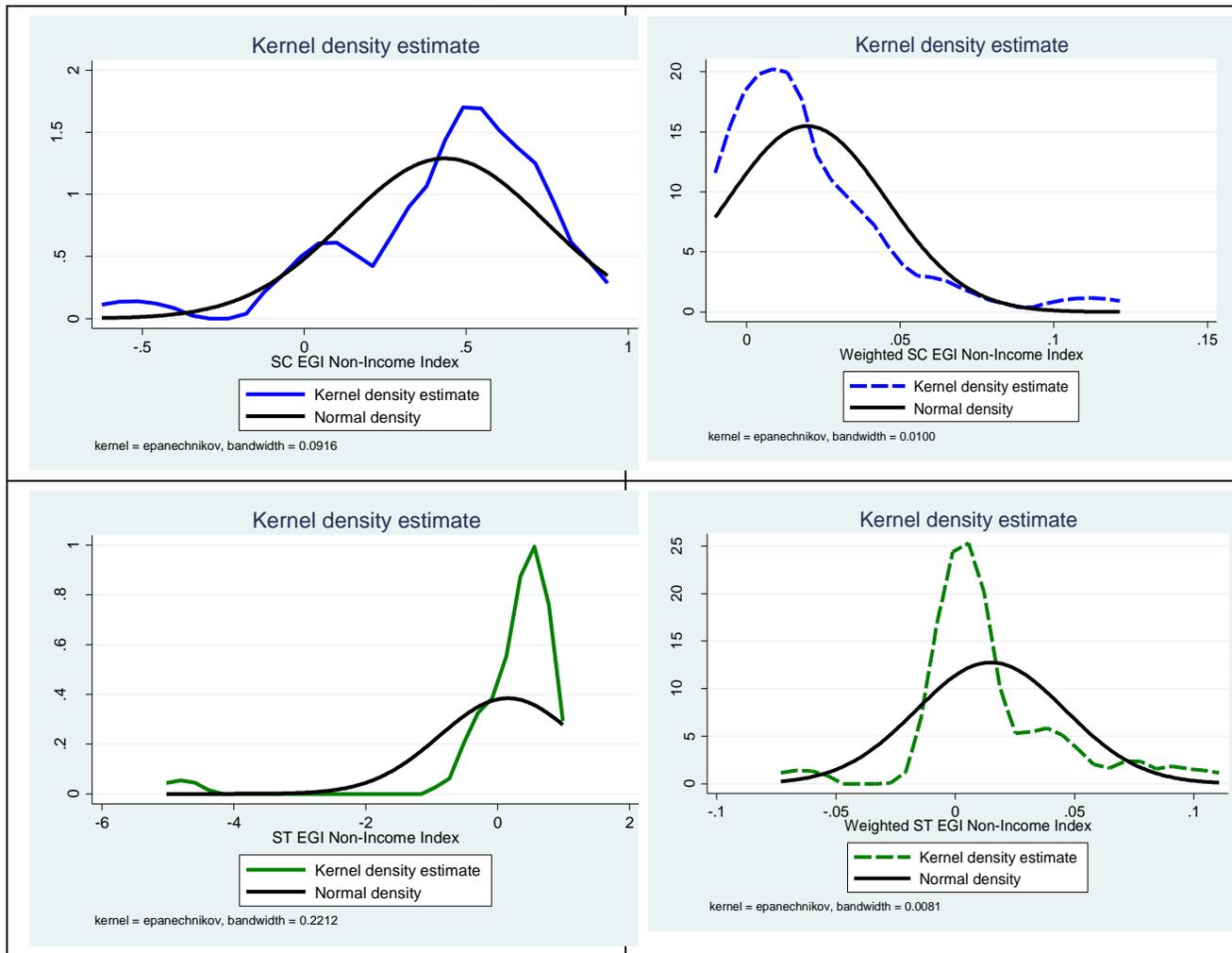
⁹ Computed using data from Socio-Economic Caste Census Survey 2011

Figure 1 Kernel Distributions- Weighted and Unweighted for Exclusion Gap Measure for Income Index Across SCs and STs



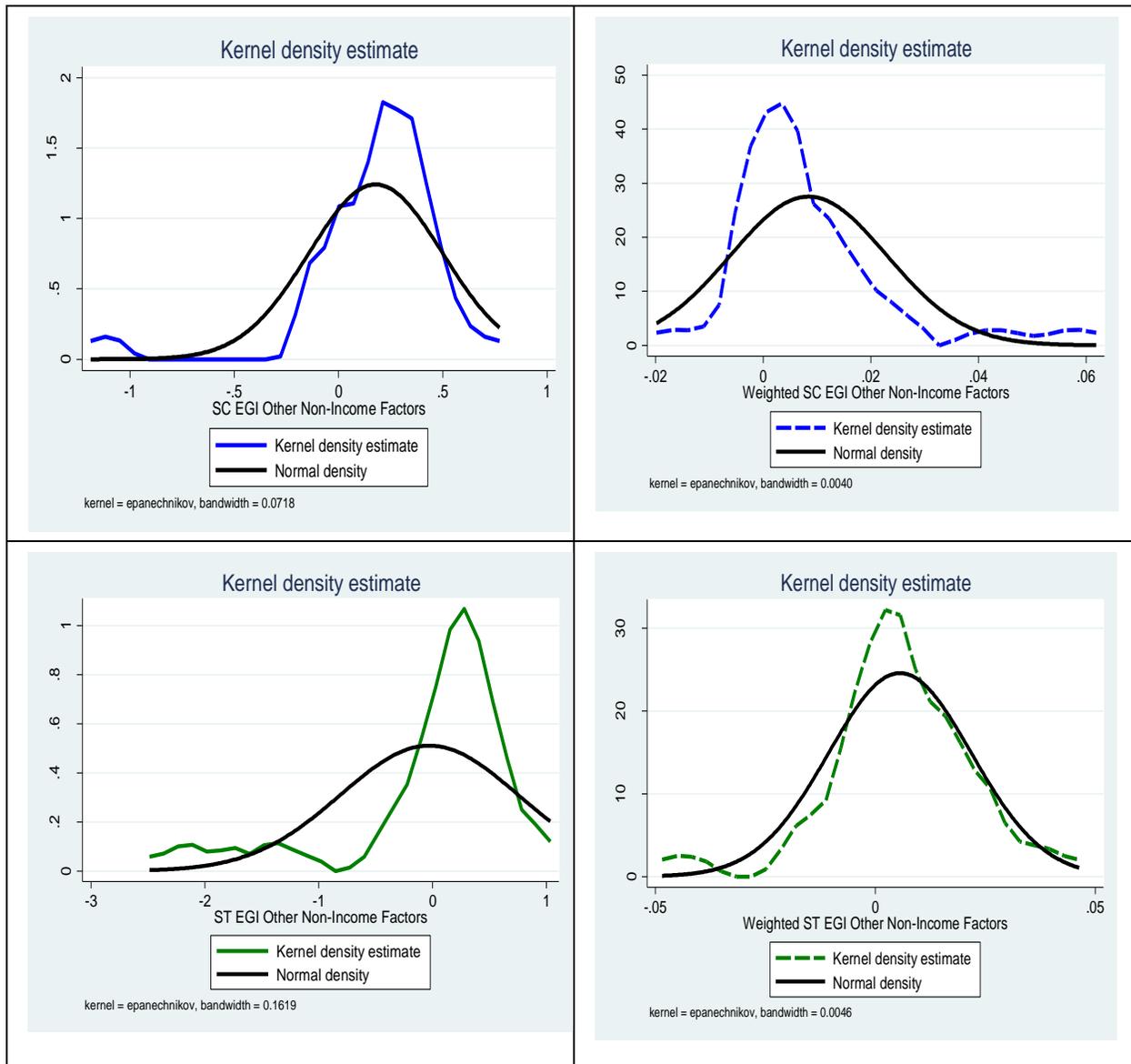
Source: Based on Computation by Author

Figure 2 Kernel Distribution - Weighted and Unweighted of Exclusion Gap Index in Non-Income Index Across Social Groups and States



Source: Based on Computation by Author

Figure 3 Kernel Distribution - Weighted and Unweighted of Exclusion Gap Index of Other Non-income Factors Index Across Social Groups and States



Source: Based on Computation by Author

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