Access (In)Equality Index (AEI)

Measuring (In)Equality of Access to Basic Opportunities Across India

O.P. Jindal Global University
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** The views/opinions expressed by these authors are made in their personal capacities and do not in any way reflect the work or views of their organisations of affiliation

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ABBREVIATIONS

AEI	Access Equality Index
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwives
ATM	Automated Teller Machine
BMI	Body Mass Index
ESI	Employees' State Insurance
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GIS	Geographic Information System
GPI	Gender Parity Index
GSMA	The Global System of Mobile Association
HLRN	Housing And Land Rights Network
HOI	Human Opportunity Index
ICRIER	Indian Council For Research on International Economic Relations
IRDAI	Insurance Regulatory and Development Authority
LFPR	Labour Force Participation Rate
LHV	Lady Health Visitor
LPG	Liquefied Petroleum Gas
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoHFW	Ministry of Health And Family Welfare
NAR	Net Attendance Ratio
NCMH	National Commission On Macroeconomics And Health
NCW	National Commission For Women
NFHS	National Family Health Survey
NFSA	National Food Security Act
NSS	National Sample Survey
OBC	Other Backward Class
PDS	Public Distribution System
PLFS	Periodic Labour Force Survey
PMJDY	Pradhan Mantri Jan Dhan Yojana
PNG	Piped Natural Gas
PPE	Personal Protection Equipment
PTR	Pupil Teacher Ratio
PwD	Persons With Disabilities
RMNCHA	Reproductive, Maternal, Newborn, Child And Adolescent Health
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RTE	Right to Education
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SC	Scheduled Caste
SDG	Sustainable Development Goal
ST	Scheduled Tribe
TCA	Technical Cooperation Agency
UDISE	Unified District Information System For Education
UN	United Nations
UT	Union Territory
WPR	Worker Population Ratio

ABBREVIATIONS

NSSO	National Sample Survey Office
GDP	Gross Domestic Product
IJR	India Justice Report
OOPE	Out-Of-Pocket Expenditure
IMRB	Kantar IMRB?

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All errors remain our own.

EXECUTIVE SUMMARY

With the need for international comparisons becoming pressing, income inequality has risen to the top of the development agenda across the globe. Most of the literature on inequality has focused on inequality of outcomes such as income inequality or wealth inequality arising from various economic, demographic and social processes which impact distribution of income. However, the discourse around income inequality does not reflect (in)equality of opportunity (basic amenities, health care, education, access to justice and socio-economic security) that arise because of the circumstances that are beyond individual's control including gender, family background, ethnicity, place of birth etc. These evidences while informative are often criticized for not measuring inequalities that are more relevant from a social or moral perspective (Lefranc. A et. al, 2007).

Inequality is a roadblock to progress and development as it deprives people of opportunity. The international community through Sustainable Development Goals (SDGs) aims to "ensure that no one is left behind". One of the major factors behind India falling short of achieving these goals remains underinvestment in human and social capital leading to uneven access to various opportunities such as education, healthcare and other basic amenities. Thus, with goal of achieving equality in opportunities, rather than outcomes, it becomes important to measure inequality from this perspective.

Moreover, global data shows that the Covid-19 pandemic has further widened the existing income and wealth inequality significantly, both within and between countries (Goldin and Muggah (2020), Ghatak (2020), UN reports). India, itself, produced 70 new millionaires every day between 2018 and 2021(Oxfam, 2021), while the number of people living in poverty increased by 75 million due to the pandemic, accounting for nearly 60 percent of the global increase in poverty.

With pandemic not only contributing to inequality, but also the dynamics of public service delivery and working of institutions, markets and governments, measuring inequality with a fresh perspective turns out to be even more vital.

The concept of equality of opportunity is rooted in the Rawlsian philosophical tradition whereby, people are expected to construct society in a way that they would be happy for their position in society to be determined by a random draw (Rawls (1971) and Dworkin (1981). He argued that social positions should be formally open to all and that each person should have a fair chance of attaining them. Over the years, with the development of literature, there now exists multiple interpretations of inequality of opportunity that arise because of factors or circumstances that are beyond an individual's control. These include accessibility and availability of basic resources (Dworkin, 1981), primary goods such as basic liberties and rights, access to political and other offices (Rawls, 1971), public goods, quality of education or access to labor market opportunities, gender, family background, ethnicity, place of birth etc.

Against this background, the objective of this report is to create an index to capture inequality among households and individuals by looking at access to various opportunities (capabilities), thus measuring uneven distribution of deprivations across the states and union territories in India. The definition of "Access" in this report is conceptualized to encompass the "4As", namely 1) Availability 2) Affordability 3) Approachability and 4) Appropriateness. These four dimensions of "Access" are not only critical in addressing inequalities in accessing healthcare services but can be expanded to cover various other sectors including basic amenities, education, justice and for addressing socio-economic inequalities.

The AEI framework illustrated in figure 1, therefore, measures five key pillars across 23 broad categories[1] crucial to social and human development, each of which relates to an important opportunity for improving the overall quality of life and that has been found to be critical in reducing inequality. This multidimensional framework serves as a benchmark in assessing inequity in spatial and non-spatial access to social and economic opportunities across the states.

[1] These 23 broad categories have in total 58 indicators that are included in the creation of index.

This report is currently in a working paper stage and any inputs/comments for incorporation can be shared at cnes@jgu.edu.in

Figure1: Access to Inequality Index – Framework

The composite index as seen in the Table 1A and 1B below is created using equal weights or a simple average aggregation technique where five of the sub-indices are given equal weight and all variables within each sub-index are also assigned equal weight (=1). The final index value for each state/UT is produced by taking the geometric mean of the five sub-indices. States and UTs are ranked on the basis of the final aggregate score. To ensure comparability, all variables are normalized, the details of which are provided in the report.

In order to ensure comparability across geographical size and governance, AEI 2021 scores and ranks states and UTs separately. Based on the composite Index scores range (0.67-0.23), the states are grouped into three categories: Aspirants, Achievers, and Front-runners (Table 1).

Front-runners are the states falling in the top one-third score range (score above 0.42) and are the best performing States. The findings from the composite index indicate that twelve states are front runners. Smaller states such as Goa, Sikkim, Himachal Pradesh and Punjab have the advantage of better coverage of service geographically and demographically. There has been concerted focus by these state governments in ensuring improvement of Human Development, and achieving SDGs, which has resulted in better accessibility. Among larger states, Tamil Nadu, Kerala, Telangana, Karnataka, and Andhra Pradesh have performed the best, and thus, provide better access to critical human development opportunities to its citizens.

Achievers represent the States with an average Index score between .42 and .33. These States provide good access to opportunities and can advance to the next group with sustained efforts. Aspirants are the bottom States with an Index score below 0.33. The states with the least overall access to opportunities are Bihar, Uttar Pradesh, Jharkhand, Assam, Odisha and Madhya Pradesh

Among UTs, Chandigarh and Puducherry are the best performers. The Index is also a tool for States and

Table 1A: Composite Index: Rankings of States

Rank	States	Composite index
Front Runners (> 0.42)		
1	Goa	0.67
2	Sikkim	0.6
3	Tamil Nadu	0.55
4	Kerala	0.53
5	Himachal Pradesh	0.52
6	Telangana	0.49
7	Punjab	0.48
8	Mizoram	0.46
	Karnataka	0.46
10	Andhra Pradesh	0.45
11	Nagaland	0.43
	Haryana	0.43
Achievers (.33-.42)		
13	Maharashtra	0.42
	Arunachal Pradesh	0.42
15	Gujarat	0.41
16	Uttarakhand	0.4
17	Chhattisgarh	0.38
18	Rajasthan	0.37
19	Tripura	0.36
20	West Bengal	0.35
21	Manipur	0.33
	Meghalaya	0.33
Aspirants (<.33)		
23	Madhya Pradesh	0.32
24	Odisha	0.31
	Assam	0.31
26	Bihar	0.29
27	Uttar Pradesh	0.28
28	Jharkhand	0.23

Table 1B: Composite Index: Rankings of UTs

Rank	UTs	Index Value
1	Chandigarh	0.55
2	Puducherry	0.52
3	Andaman & Nicobar Islands	0.50
4	Delhi	0.49
5	Jammu & Kashmir	0.42
6	Dadra and Nagar Haveli	0.38
7	Daman and Diu	0.37

UTs to identify problem areas and focus their interventions in these areas, given that the report presents the sub-indices rankings as well.

In the absence of data at the state level, the report also comments on the inequalities spread across region (urban, rural), caste, and gender for all India level. Spatial inequalities — where people reside (urban or rural) — have an impact on access to opportunities, including access to basic amenities such as safe drinking water, housing, clean energy, sanitation, health care, education, decent work and other goals envisioned in the 2030 Agenda (SDGs).

The exclusions and discriminations meted out to various castes (Schedule Caste (SC), Schedule Tribe (ST) and Other Backward Class (OBC)) in India also resulted in high incidences of poverty, deprivation, and low levels of education & awareness, which has hindered their access to opportunities. Further, the presence of gender inequalities has limited the progress of women in India, depriving them of access to various opportunities vital for their growth.

The twin approach of ranking Indian states and UTs, accompanied by explanations on the inequalities across region, caste and gender in this report, presents both aggregated and disaggregated view of the situation. This helps in identifying the challenges faced by individuals and households in accessing various services across Indian states and UTs. There is a need for targeted policies and an action plan to address the bottlenecks, given that the recent pandemic has exacerbated the pre-existing vulnerabilities and deprivations, which is observed not only in the various outcomes matrix but also in accessing various opportunities in the form of affordable, quality education, health care and basic infrastructure, which remain unevenly spread both socially and geographically.

Addressing such inequality of access will remove the institutional and structural "barriers" which creates "exclusion" of various sections of populations from the development process. The findings from the report calls for promoting equal access by extending coverage of the essential services to more people — irrespective of their caste, gender, region — such that India can achieve inclusive growth in its truest sense.

1. Background

Significant deficits in the achievement of Sustainable Development Goals remain stagnant in developing countries, including India. One of the major factors behind this shortfall remains underinvestment in human and social capital leading to uneven access to various opportunities such as education, healthcare and other basic amenities. This negatively affects economic growth in the long term and traps the country on a path of increasing income and wealth inequality (Marrero and Rodríguez, 2013; Bradbury & Triest, 2016; Ferreira et al. 2014; OECD).

Goal 10 of the SDGs directly calls for a progressive reduction of income inequality while also ensuring access to equal opportunities, and promoting social, economic and political inclusion of all — irrespective of age, sex, disability, race, ethnicity, religion or any other social status. The SDGs target "leaving no one behind" through "universal access" to food, basic amenities such as sanitation, water, healthcare, education, decent work and other socio-economic opportunities. An assessment of the supply side imbalances in providing these "access" provisions thus becomes important (access to public infrastructure, public goods, service, or institution).

In addition to this, the Covid-19 pandemic has led to contraction of India's GDP by 7-8percent —the largest in the post-Independence period—and has worsened the existing income and wealth inequality significantly, both within and between countries. India produced 70 new millionaires every day between 2018 and 2021 while the number of people living in poverty increased by 75 million due to Covid-19, accounting for nearly 60 percent of the global increase in poverty . This adds to the motivation behind relooking at the measurement of inequality through creation of an index encapsulating new dynamisms in global inequality debate.

This report—through the AEI framework—holds merit in examining how far Indian states and UTs are from providing universal access to essential goods and services to all. Location/geographical distribution or spatial concentration of opportunities matter in achieving equality. There is evidence which proves that young children (below age 13) who move to lower-poverty areas with better access to opportunities are more likely to attend college and have substantially higher incomes as adults (Chetty, R. et al. 2016), thus, attaining better standards of living. Various inequalities of opportunities arising due to uneven distribution of basic amenities and infrastructure across space scales are often mutually reinforced, creating a vicious trap for households and communities. These circumstances make it particularly hard for them to improve their living standards. Thus, this report aims to highlight the inequalities in opportunities, wherein the problems to which they give rise have a spatial dimension that policy makers cannot afford to ignore.

In the recent years, globalization and digitalization have been transforming the way economies work, providing new opportunities for growth, but also deepening inequalities[7]. Accelerated use of digital technologies, and automated decision-making tools for basic services such as health and education, seem to have made access more inequitable in an already unequal society, thereby, hindering people from receiving services they are entitled to[8]. The pandemic in past as well as now has acted as a source of creative destruction (Schumpeter, 1942) and has changed the well-established dynamics of governance, public service delivery, and economic and social mobility, altering the definition of "accessibility".

[2] IMF and recent national estimates
[3] Goldin and Muggah (2020), Ghatak (2020), UN reports
[4] India Extreme Equality in Number, Oxfam.
[5] Pew Research Center, 2021
[6] All On Board Making Inclusive Growth Happen, OECD
[7] OECD (2020), "Enhancing Equal Access to Opportunities for All", OECD Publishing, Paris
[8] Virginia Eubank's - Automating Inequality

This necessitates renewed measurement of inequalities incorporate this dynamism. Thus, along with the physical aspect or the spatial distribution of opportunities, the report tries to capture other nuances of "access" which have been defined in the next section.

2. About the Index

2.1. Introduction

The empirical literature about 'equality of what' and views of justice consistent with equality of opportunity involves contributions from many key economists and philosophers, beginning with John Rawls (1958, 1971), Amartya Sen (1980), Ronald Dworkin (1981a, 1981b), Richard Arneson (1989), G.A. Cohen (1989), John Roemer (1993, 1998), Fleurbaey (2008), Walter Bossert (1995, 1997), Vito Peragine (2004), Dirk Van de Gaer (1993) and Nussbaum (2011) along with many others. Appendix 1 provides a synopsis of the vast literature on the subject.

The majority of discourse on inequality has been centered around economic inequality, particularly income or wealth inequality, thus focusing on inequality of outcome (Fields and Fei, 1978; Atkinson, 1970; Deaton, 2013,2021; Milanovic. 2016; Niño-Zarazña, etal. 2017; Goldin and Muggah, 2020; Chateauneuf and Moyes, 2005). There are multiple indices and ratios which have been adopted globally to measure inequality, particularly income inequality, due to availability of income datasets (Lorenz, Gini coefficient, decile ratios, Atkinson's index, Theil's index).

However, inequality goes beyond income and affects opportunities and capabilities for large parts of society (Roemer, 1998, 2013; Bourguignon, Ferreira, and Walton, 2007; Elbers et al., 2008; Cohen, 1989; Arneson, 1989). Wealth, income and consumption are generally considered economic outcomes and indicators such as health status (mortality rates, life expectancy), literacy rates define social outcomes. These outcomes are the "ends" which have been the result of various "means" or processes which relate to access to basic opportunities such as water, education, electricity, sanitation, etc. The goal (in terms of inequality) should be to equalize the opportunities people have, and not the outcomes people obtain (Drèze and Sen, 2013). Sen defines "capabilities" as freedom or real opportunities one has regarding the life one may lead. Instead of focusing exclusively on economic means or subjective well-being, capability approach focuses on people's capabilities to live the kind of life they have reason to value (Sen, 1979; 1985; 1987; 1992; 1993; 1999; Nussbaum, 2011).

This report draws on the concept of "opportunities" and "capabilities" in order to assess the uneven distribution of deprivations across the country. As the concept of "opportunities" and "capabilities" is too broad and is subject to much wider deliberations, this report will restrict itself to looking at opportunities (capabilities) through the lens of "access". The link between equality and access to opportunities is important in its own right because (i) access to opportunities acts as a social and personal determinant of aspirations of people, which impacts their investments in human capital for themselves and their children, which will then affect actual mobility and human capital development (Genicot and Ray, 2016; Cojocaru 2019); and because (ii) unequal access to opportunities is associated not only with lower intragenerational mobility, but also intergenerational mobility and stronger redistributive preferences impacting policy decisions (Cojocaru 2019; IMF, 2020[9]; OECD, 2017).

Generally, one-dimensional, income-based measurements do not reflect (in)equality of opportunity that arise because of the factors or circumstances that are beyond an individual's control and for which they

[9] IMF's "Enhancing Access to Opportunities" - https://www.imf.org/external/np/g20/pdf/2020/061120.pdf

cannot be held responsible. These factors include accessibility and availability of basic resources (Dworkin, 1981), primary goods such as basic liberties and rights, access to political and other offices (Rawls, 1971), public goods, quality of education or access to labor market opportunities, gender, family background, ethnicity, place of birth etc. It usually includes non-income dimensions such as health, education, access to basic services and human development measured primarily through intergenerational social mobility[10].

The motivation behind this index is analogous to that of the Human Opportunity Index (HOI) of Barros et al. (2009, 2011) which measures the extent to which households have access to "basic opportunities" across various states/UTs. HOI is a synthetic measure of how far a society is from universal access to an essential good or service, and how equitably access is distributed across individuals (circumstance groups). It defines "opportunity" itself as "access to a good or service, which society accepts should be universal".

There is a large body of work on inequality in India, to state some - Banerjee and Piketty (2001); Deaton and Dreze (2002); Sen and Himanshu (2005), Pal and Ghosh (2007). These works present robust evidence on the existence of inequality in India, but they mostly focus on measuring inequality in consumption or income. They also present important factors behind the growing inequality and contribute immensely to enrichment of poverty and inequality estimation in India. The AEI report builds on these evidences indicating the persistence of 'relative' poverty and inequality in India and attempts to perform an in-depth assessment of each Indian state's performance in terms of provision of access to various opportunities to its citizens towards the maximization of the well-being and reduction of income inequality and poverty of the citizens.

2.2. Outlined Objectives of the Study

Recent analysis of global income inequality trends underlines the importance of being clear about how inequality is understood and measured. Inequality of what (means versus end, opportunity versus outcome), inequality among whom and at what level (between countries, regions, castes, gender, etc.) is determined by the definition of inequality. Thus, the report aims at the following:

a) To develop a multidimensional Index to capture (In)equality of what or (In)equality in access to key opportunities including individual/household access to public infrastructure, resources and public service delivery indicators and generate scores and rankings for all States and UTs based on pillar wise performance and overall performance.

b) To look at inequality of whom or horizontal inequality - inequality between groups of individuals or households classified according to gender, caste and region.

c) This report also comments on the impact of the pandemic on rising inequalities in India.

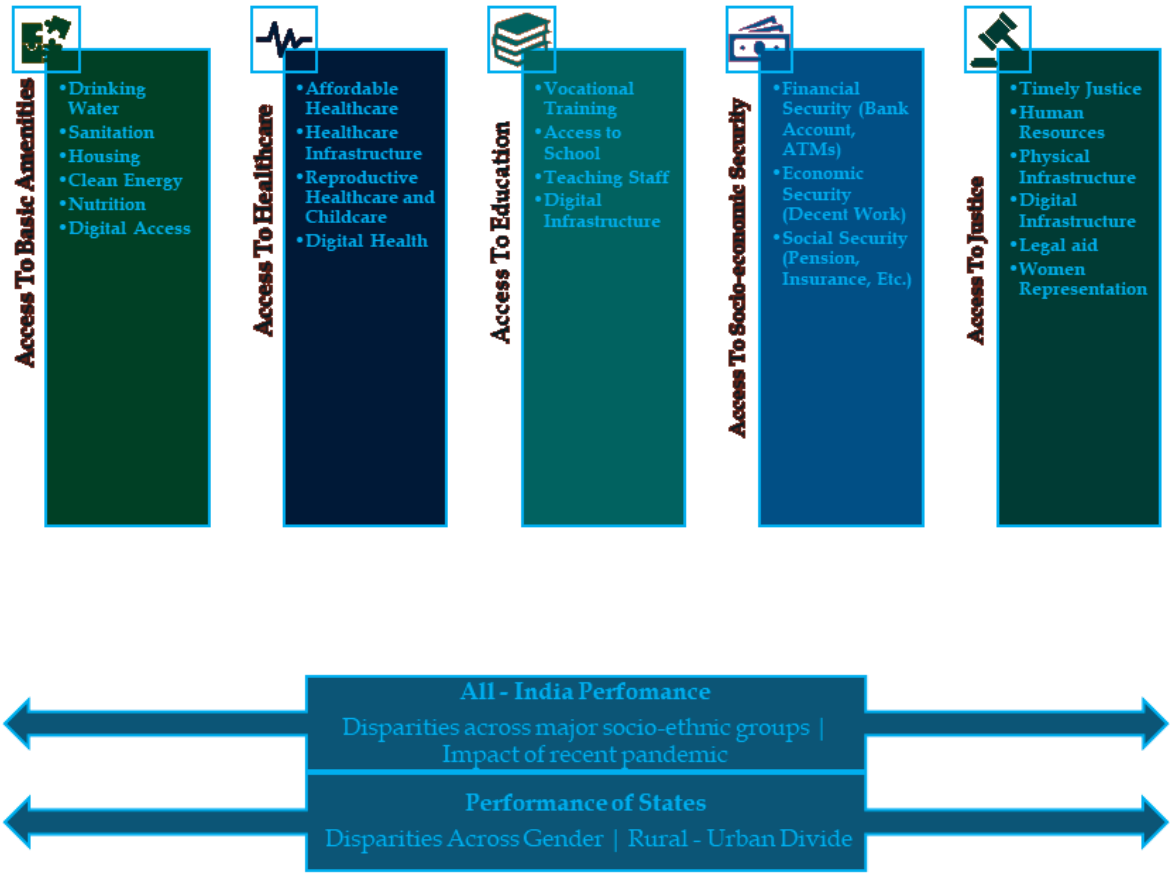
2.3. Salient Features

1. The AEI Index measures 5 key pillars crucial to social and human development, each of which relates to an important opportunity for overall quality of life and has been found to be critical in reducing inequality. These are: basic amenities, healthcare, education, social and economic security and justice. The index measures the set of opportunities represented by these pillars. The report, thus,

[10] Francisco Perez-Arce, Ernesto F. L. Amaral, Haijing Huang, Carter C. Price (2016); Andrews and Leigh (2009), Corak, M. (2013), Berman, Y. (2016).

provides a multidimensional framework to construct an "Access to (In)Equality Index" which would serve as a benchmark in assessing inequity and spatial access to social and economic opportunities across the states by the means of ranking. The five pillars include 23 broad categories as depicted in Figure 2.1 below. These 23 broad categories have in total 58 indicators that are included in the creation of index. The details of the indicators are provided in Appendix 2 .

Figure 2.1: Access to Inequality Index – Framework



2. The definition of 'Access' in this report is derived from the theory developed by Penchansky and Thomas (1981) and others (Levesque et al. 2013; Haddad & Mohindra, 2002; Peters et al. 2008; Di McIntyre et al.) in healthcare policy literature. Though "Access" in general means a way of approaching, reaching or entering a place, as the right or opportunity to reach, use or visit[11], it is here broadly conceptualized to encompass the "4As" as provided in figure 2.2 below. These four dimensions of "Access" are not only critical in addressing inequalities in accessing healthcare services but can be expanded to cover various other sectors including basic amenities, education, justice and for addressing socio-economic inequalities.

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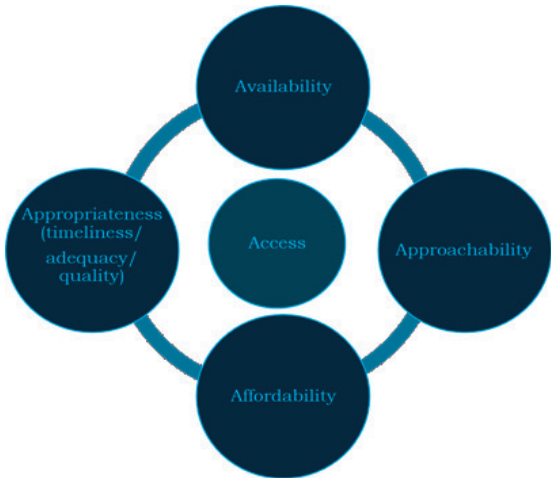
Figure 2.2: What do we mean by "Access"?



Source : Developed by authors on the basis of Literature Review

a. Availability: This measures **physical access** or in other words, presence, demographic coverage, and volume of service or institutions or opportunities available to the population (household and individuals).

b. Approachability: This measures **geographical access** or in other words, the ability of households/individuals to access the services.[12]

c. Affordability: This measures **financial access**, or in other words the relationship between the prices of the services and providers to the household's or individuals' income and their ability to pay for accessing the services.

d. Appropriateness: This measures the **adequacy of the services** by assessing the balance between the need and service provision in terms of content, effectiveness, timeliness and quality.

3. To assess the 4As, we primarily look at the **household level data** or access granted to individuals across states and UTs collected from various national sources as provided in Appendix 2. The data for some of the indicators are as old as 2016. However, for most of the indicators we have tried to capture the latest possible data available. We have also tried to map and cover the four dimensions of "Access" across all the indicators to the extent possible.

[12] So far, India lacked valuable data on the location of various public facilities, but GIS – based planning has been received a much-awaited push in recent pandemic times. But even today mapping the location of essential infrastructure to assess the actual accessibility and conduct an advanced spatial analysis on various social outcomes is not possible.

4. The report presents the findings from the Composite Index for states and UTs and also provides pillar wise rankings for states and UTs.

5. The report provides brief commentary on:

a) Gender disparities in accessing the opportunities in terms of basic amenities, health, education, socio-economic security and justice.

b) Disparities across various socio-ethnic groups in accessing various opportunities at an all-India level.

c) Rural-urban gaps in accessing basic services and opportunities.

2.4. Rationale

Each pillar has been selected on the basis that disparities in each—access to health, education, basic services, social-economic security and justice—are markers of inequality of opportunity and are associated with deprivation of multiple 'means' essential for well-being (as summarized in table 2.1). Uneven access to these services constrains human capabilities, the quality of human capital, impact life-time income and restrict intergenerational mobility.

It should be the priority of the Government to provide people with basic infrastructure, education, health and socio-economic security. However, not all citizens can avail of these opportunities equally due to various circumstances. For example, many children in India are unable to attend school due to their inability to travel kilometers on foot daily; many girls drop out due to no access to clean water and sanitary toilets in the school.

Each indicator tries to capture such crucial circumstances or socioeconomic and demographic characteristics outside the individual's control, related to the four dimensions of 'access' defined in this report.

Table 2.1: Rationale for the Pillars

S.no.	Rationale
1.	Universal access to basic amenities and public infrastructure such as drinking water, sanitation, electricity, decent housing, food and nutrition is imperative to ensure a decent quality of life, healthier lives, improved job opportunities and subsequently, higher economic growth. • Access to piped water and sanitation is critical in reducing the child mortality substantially (Zwane et.al., 2007). The distance and time spent fetching water from the source significantly affects the health of children under five (Pickering and Davis, 2012; Zayatri et. al., 2013) and increase the risk of illness (Xia and Hunter, 2010). Close to 54 percent of rural women—as well as some adolescent girls—spend an estimated 35 minutes fetching water every day, equivalent to the loss of 27 days' wages over a year.[13]

[13] Analysis of the situation of children, adolescents and Women in India 2016

	• Access to good-quality affordable housing is important for achieving a number of social policy objectives, including poverty reduction, equality of opportunity and social inclusion.[14] • Increasingly, access to mobile and internet has also become fundamental as a means for inclusive growth and act as a node for access to information and diversifying livelihood opportunities. • Access to clean cooking energy has the transformative potential to curb the health risks posed by traditional cookstoves while also reducing the time spent by women on unpaid domestic work. • One of the key channels of food security in India is the distribution of food grains through the government controlled Public Distribution System (PDS).[15]
2.	Health and human capital are strongly related and better health early on is a determinant for future outcomes.[16] Universal access to healthcare is instrumental to achieving equality of opportunities. Monitoring Universal Health Coverage requires measuring health service coverage and financial protection (SDG 3). • According to a study, increasing the density of health facilities and providers in rural areas may improve maternal and neonatal care.[17] Proximity and access to health care are important determinants of health outcomes. • Due to lack of GIS–based data on location of healthcare infrastructure, the study aims to use other indicators available such as availability of beds, doctors, nurses/ANMs etc. While urban populations have access to private health care networks, rural populations rely heavily on the public health system, thus require special attention. • Moreover, COVID-19 has not been an equal opportunity virus, it disproportionately affects the poor and the least developed economies with poorer health conditions, health systems that are less prepared to deal with the pandemic, and people living in conditions that make them more vulnerable to contagion.[18] Thus, looking at accessibility of health-care services, the public health system becomes indispensable. • The study also looks at the public spending on health which is crucial as it is an important means itself to achieve universal healthcare.
3.	Education is fundamental to human and social progress, developing an equitable and just society, and promoting national development. India aims to achieve Goal 4 of SDG which is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. The broader objective of the education and skill-related interventions is to reduce the inequality of opportunities among the population so that in the medium and long run, the inequality of outcomes will be eliminated.[19]

[14] OECD, 2017, https://www.oecd.org/inclusive-growth/inequality-and-opportunity/The-Issues-Note-Social-Mobility-and-Equal-Opportunities-May-4-2017.pdf
[15] DFPD Targeted Public Distribution System.; Available online: http://dfpd.nic.in/public-distribution.htm.
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[18] Stilgtilz (2020)
[19] India SDG report 2019-20

	The report takes into account specifically Secondary education, as India has achieved considerable success in ensuring universal access to elementary education with RTE Act implementation in the past few years and hence, focus now should move to universal secondary education as the basic necessity. • While distance to school is an important factor and captures geographical access, the report adopts an expanded view of education access to go beyond the indicators of enrollment and include the dropout rate and actual attendance, since these reflect various socio-economic reasons acting as hindrances to access to schooling indirectly. "Increasing attendance cannot be an end in itself. Rather, it should be a means to improving learning outcomes and the employability and competence of the workforce".[20] • The appropriateness of education at secondary level depends on various factors such as pupil-teacher ratio and teaching of vocational courses etc. • The study looks at how much a state spends per child (population aged 13-15) for secondary education, as it denotes the inputs or means to ensure universal access to quality and affordable education. • The study also looks at computer and internet access in schools to capture availability of school level infrastructure for digital education
4.	Equal access to and control over economic and financial resources is critical for the achievement of equitable and sustainable economic growth and development. It has positive multiplier effects for a range of key development goals, including poverty reduction and increased welfare at both the household and macro level. • According to Dreze and Sen (1995), "Social security is an essential requirement of social justice". Social security is a set of means that influences human development by addressing deprivation and improving living standards and access to entitlements[21]. • Financial inclusion and access to better financial infrastructure acts as stepping stones for better economic stability. • The International Labour Organisation (ILO) describes three decent work dimensions: 'employment opportunity', 'social security benefits' and 'social dialogue'. The report captures the first two for access to decent work. • Access to work has been captured through Worker Population Ratio (WPR) as it provides information on actual workers/employed population against Labour Force Participation Rate (LFPR), which provides information on available labour supply. Mahatma Gandhi National Employment Guarantee Act (MGNREGA) has been a crucial source of providing Social Protection and Economic Empowerment to rural unskilled youth, and thus has been considered to measure access to decent work in rural areas.
5.	Access to opportunities to live in a safe environment with a fair legal support system is essential not only for human development at an individual level, but for the economic and social development of the country as a whole. Heterogeneity and a complex hierarchical social structure in India make the right to justice an even more vital factor for achieving equality.[22]

[20] Special Focus: Inequality In Emerging Economies (Ees), OECD, 2011
[21] Tamil Nadu Human Development Report
[22] In the absence of data on affordability, the indicators used in this pillar measures availability, approachability and appropriateness in the justice system in India

	• An effectively functioning justice system comprises of four major pillars — Police, Judiciary, Prisons & Legal Aid. Strengthening the state capacities in all these areas requires urgent attention to provide people with the best possible justice delivery. • Despite the progressive measures, the 'access to justice' in India has been costly and beyond the reach of poor citizens, worsened by the delays in disposal of cases and arrears in the system. • In the recent years, the government has introduced a slew of measures to improve access to justice and justice delivery like services provided by state's citizen portals, which in light of the recent pandemic, have also received a major thrust. • Judiciary remains one of the least diverse areas especially for representation of women and looking at the inequality within is important to bring out the difference in the same across states.

2.5 Data Collection and Methodology

The indicators included in all the pillars have gone through several omission and commissions based on the availability of data across the states and UTs. The choice of indicators is also based on the 4As of the 'Access' identified in the report and is accounted for across all the indicators to the extent possible. Indicators have been selected on the basis of their importance and availability of reliable data from existing data sources such as National Family Health survey (NFHS), National Sample Survey (NSS) reports, India Sustainable Development Goals (SDG) Reports, Ministry of Health and Family Welfare (MoHFW), Ministry of Rural Development (MoRD), etc. We have tried to create the index as per the latest data available. The five pillars include a total of 58 indicators. Across 58 indicators, the data is available for all the states. However less data is available for the UTs.

For better representation, we have ranked states and UTs separately. The ranking of UTs across all the pillars and the composite ranking is based on fewer indicators for which the data was available.

Building the Composite Index and Method of Aggregation

The index is constructed through successive aggregation of scores. Scores for individual indicators are aggregated to create the five sub-indices: access to basic amenities, access to health care, access to education, access to socio-economic security and access to justice. The sub-indices are further aggregated to arrive at the final composite index score. States and UTs are ranked on the basis of the final aggregate score. To ensure comparability, all variables are normalized (See Appendix 2 for more details).

The index is created using equal weights or a simple average aggregation technique where five the sub-indices are given equal weight and all variables within each sub-index are also assigned equal weight (=1). This method of aggregation is used when there is limited or no information to judge whether some variables in the index are more important than others or when all variables are considered equally important.

There are two steps to calculating AEI values .

The first step involves calculating indicator value:

Minimum and maximum values (goalposts) are set in order to transform the indicators expressed in different units into indices between 0 and 1. These goalposts act as "the natural zeros" and "aspirational targets", respectively, from which component indicators are standardize.

Having defined the minimum and maximum values, the variables are normalized using the following formula

The basic formula for converting an indicator value (V) into an index score (I) is:

$$I=\frac{\text{V-minimum value}}{\text{maximum value-minimum value}} \quad **$$

where minimum value is the minimum admissible value (lower bound) and, maximum value is the maximum admissible value (upper bound)

In a few cases, indicator and criteria point in opposite directions. In these cases, the following alternative formula is used. For instance, in case of availability of judge per 1000 population. The lower the population load on a high court the better the states ranking are. In such cases, the formula presented below is used .

$$I^*=\frac{\text{maximum value-V}}{\text{maximum value-minimum value}}$$

Again, actual indicator values are replaced with lower or upper bounds, if necessary.

The equation 1 is first applied to each of the indicators of the pillars, and then the arithmetic means of the indicators resulting indices is taken. For instance, to arrive at the sub-index value for basic amenities, we have first normalized all the 10 indicators (see appendix 1 for information on the indicators) using equation 1 and then used arithmetic mean to arrive at the basic amenities sub- index. We use same methodology for all the other four pillars including education, health, social security and justice.

The second step involves developing composite index

This is produced by taking the geometric mean of the five sub-indices .

$$AEI = (IBasic\ amenities * IHealth * IEducation * ISocial\ Security * Ijustice)^{1/5}$$

The use of geometric mean reduces the level of substitutability between the sub-indices and smoothens the intrinsic differences across them and is most suitable for this index . Additive aggregation methods imply full compensability across variables. For example, if the score for the two sub-indices is 5 and 10 respectively, the arithmetic mean would give a composite score of 7.5 while the geometric mean would give a score of 7.07.

The advantage of using the geometric mean[24] is that it implies only partial compensability, i.e., poor performance in one sub-index cannot be fully compensated by good performance in another (In this case 5 for the poor performing sub-index and 10 for the good performing sub-index). Second, it balances the uneven performance between dimensions. Third, it encourages improvements in the weak dimensions, i.e., the lower the performance in a particular sub–index, the more urgent it becomes to improve that particular dimension[25]. In case of aggregation within the sub-index, the variables are much more homogenous and therefore allowances can be made for partial substitutability. Using the arithmetic

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** https://ec.europa.eu/jrc/en/coin/10-step-guide/step-7

23 https://ec.europa.eu/jrc/en/coin/10-step-guide/step-7

24 Formula for the geometric mean $S_i = j \sqrt{\prod a_{jk}}$. If value of any sub-index is zero (0), one is added to in the set to avoid the product from becoming zero and later one is subtracted from the result for geometric mean calculation.

25 Stan. P (2014) 12th JRC Annual Training on Composite Indicators & Multicriteria Decision Analysis (COIN 2014. https://ec.europa.eu/jrc/sites/jrcsh/files/20140922_JRC_COIN_11_Aggregationpercent28Ipercent29.pdf

mean for aggregating within a sub-index does not run the risk of overcompensating a bad performing parameter by a good performing parameter. There are several other methods of aggregation such as the harmonic mean, penalty for bottleneck, summation of ranks, etc. which are more suited to other contexts and can sometimes be overly complex. The Human Development Index and the Sustainable Society Index are some popular examples that use the geometric mean for aggregation.

3. Findings from the Index

3.1 Composite Index – Measuring "Equality of what?"

Based on the composite Index scores range (0.67-0.23), the states are grouped into three categories: Aspirants, Achievers, and Front-runners (Table 3.1A). Aspirants are the bottom states with an Index score below 0.33. The states with the least overall access to opportunities are Bihar, Uttar Pradesh, Jharkhand, Assam, Odisha and Madhya Pradesh. These states require concerted efforts to improve "access" to basic amenities, education, health, justice and socio-economic security. Jharkhand, especially, requires a lot of effort across all pillar, as it appears in the bottom five of all the pillars.

Achievers represent the States with an average Index score between .42 and .33. Overall, these states have good provisions of 'access' and can advance to the next group with sustained efforts.

Front-runners, the states falling in the top one-third score range (score above 0.42), are the best performing states. Smaller states have the advantage of better coverage of service geographically and demographically but concerted focus by the state governments in ensuring improvement of Human Development and achieving SDGs has resulted in the best access on an average in Goa, Sikkim, Himachal Pradesh and Punjab. Goa ranks first in access to basic amenities, health and socio-economic security and second in access to secondary education. The only pillar where it does not secure a place in top 5 is access to Justice. Among the larger states, Tamil Nadu, Kerala, Telangana, Karnataka and Andhra Pradesh have performed the best and thus, provide better access to critical human development opportunities to its citizens.

Table 3.1A: Composite Index: Ranking of States

Rank	States	Composite index
Front Runners (> 0.42)		
1	Goa	0.67
2	Sikkim	0.6
3	Tamil Nadu	0.55
4	Kerala	0.53
5	Himachal Pradesh	0.52
6	Telangana	0.49
7	Punjab	0.48
8	Mizoram	0.46
	Karnataka	0.46

Rank	States	Composite index
10	Andhra Pradesh	0.45
11	Nagaland	0.43
	Haryana	0.43
Achievers (.33-.42)		
13	Maharashtra	0.42
	Arunachal Pradesh	0.42
15	Gujarat	0.41
16	Uttarakhand	0.4
17	Chhattisgarh	0.38
18	Rajasthan	0.37
19	Tripura	0.36
20	West Bengal	0.35
21	Manipur	0.33
	Meghalaya	0.33
Aspirants (<.33)		
23	Madhya Pradesh	0.32
24	Odisha	0.31
	Assam	0.31
26	Bihar	0.29
27	Uttar Pradesh	0.28
28	Jharkhand	0.23

Table 3.1B: Composite Index: Ranking of UTs

Rank	UT	Composite index
1	Chandigarh	0.55
2	Puducherry	0.52
3	Andaman & Nicobar Islands	0.5
4	Delhi	0.49
5	Jammu & Kashmir	0.42
6	Dadra and Nagar Haveli	0.38
7	Daman and Diu	0.37

Looking at the range of the score of composite indices, it can be inferred that a huge inequality exists among states in terms of access as can be seen in table 3.2 below. Highest inequality persists in basic amenities followed by healthcare, justice and socio-economic security. Least variations exist in access to secondary school education among states and UTs.

Table 3.2: Standard Deviation – Variation Across the Indicators

	Education	Basic amenities	Health	justice	Socioeconomic security	Index
Highest score	0.47	0.94	0.87	0.75	0.77	0.67
Lowest Score	0.13	0.20	0.28	0.14	0.24	0.23
Standard Deviation	0.08	0.19	0.15	0.10	0.12	

3.2. Sub-Index Rankings

While overall rankings are important for general perspectives, the sub-indices provide clear evidence on policy direction for the future. Rankings at the sub-index level highlight specific areas of improvement that can be achieved through policy formulation.

A) Access to Basic Amenities

As seen in Figure 3.2 A, Goa followed by Punjab, Kerala, Sikkim, Haryana, Mizoram, Gujarat, Maharashtra and Telangana are front runners (index value is >0.71) owing to the fact that the basic amenities in terms of drinking water, sanitation, housing, clean energy, nutrition and digital access out-par other states in India. Goa's high score is driven by a high score across access to drinking water, functional toilets, good quality housing, clean fuel, food through PDS and the internet. The index values for achievers lie between 0.52-0.71. On the other hand, Aspirants including Jharkhand, Odisha, Tripura, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Bihar, West Bengal, Meghalaya and Mizoram have underperformed.

Table 3.2 A: Inequality of What among Basic Amenities

	Piped Drinking Water	Sanitation	Housing	Clean Energy	Nutrition	Digital Access
Highest Value	94.6 (Goa)	100 (Multiple)	98.5 (Punjab)	96.5 (Puducherry)	100 (Multiple)	79 (Delhi)
Lowest Value	3.4 (Bihar)	54.9 (Odisha)	37.7 (Manipur)	32.6 (Odisha)	56.34 (Puducherry)	38.25 (Tripura)
Standard Deviation	64.5	31.9	43.0	45.2	30.9	28.8
All India Average	33.7	79.8	83.3	61.4	99.51	55.97
SDG Target/ Benchmark	100	100	100	100	100	100
Gap to universal access	66.3	20.2	16.7	38.6	0.49	44.03

Among basic amenities, highest inequality is seen in access to drinking water whereas, access to digital means (mobile & internet) & nutrition among states has least variations. Access to piped drinking water is the farthest from universal access SDG target, whereas, access to food/nutrition through NFSA/PDS is closest to the target.

Figure 3.2 A: Access to Basic Amenities : Ranking for States – sub index scores

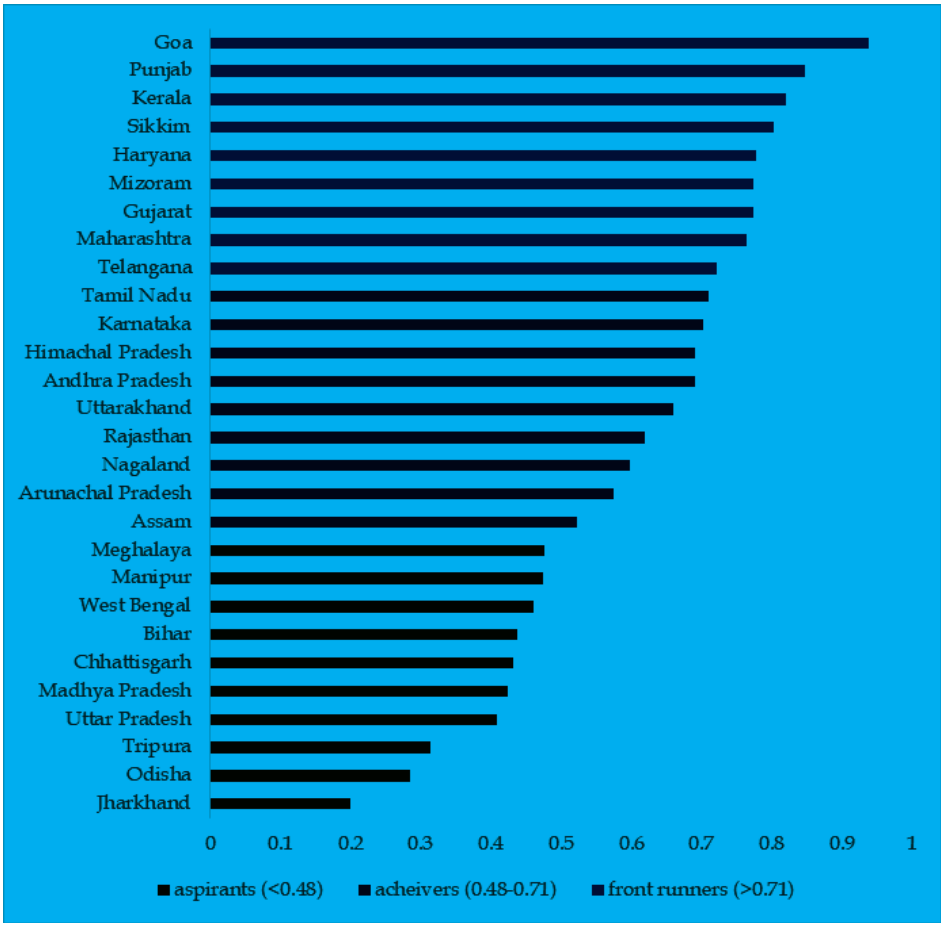
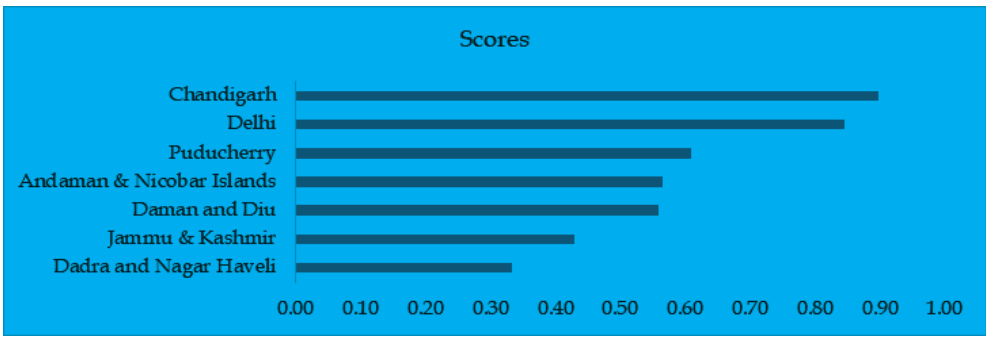


Figure 3.2 B : Access to Basic Amenities : Ranking for Union Territories (UTs)



Drinking Water: Piped drinking water available to the households is one of the critical components for achieving universal access to safe drinking water in the country. Approximately 95 percent of the households in Goa and 86 percent of the households in Sikkim have access to Piped Water Supply as principal source of drinking water within their premises, with all India average being 33.7 percent.

The distance travelled to access the principal source of drinking water measures the quantity and quality of water used by the households. Off-premises improved water sources located within 30 minutes of the point of use are considered a basic service. If the source is located above 30 minutes from the source, level of service is classified as limited (WHO & UNICEF, 2017).

The relation between the quantity of water used by the household and the time taken to fetch it can be qualitatively described as non-linear with a steep decline (at roughly 3 minutes of collection time) in water used once the source is not on the premise. While only 65.9 percent of the households in Indian states have access to water within the premise, more than 80 percent of households in Goa, Punjab, Haryana, Kerala and Sikkim have to travel less to access drinking water.

Sanitation: Access to toilets and availability of water in the toilets has been the agenda of the national sanitation program "Swachh Bharat Mission" launched in 2014. The inadequate access to toilets has caused India an economic loss of USD 53.8 billion - equivalent to 6.4 percent of the GDP[26] as a result of health-related impacts including premature deaths, the cost of treating disease and productive time lost due to illness. Other causes include the impact of women not going to work due to related illnesses and of girls missing school.

The findings from the index suggest that 100 percent of the households in Sikkim, Manipur, Mizoram, Nagaland, Chandigarh and Lakshadweep have access to toilets aso the final line becomes - The findings from the index suggest that 100 percent of the households households in Sikkim, Manipur, Mizoram, Nagaland, Chandigarh and Lakshadweep. Sikkim have access to latrines/toilets..

Housing: Good quality, secure housing is one of the major end goals for many societies aiming to ease global poverty and ensure the provision of basic amenities for economically backward groups. Over the years, several governments, both state and central, have introduced various housing schemes in India. The Indira Awas Yojana which began in 1996 was one of the first major housing schemes with large-scale goals. Renamed the Pradhan Mantri Awas Yojana Gramin, the scheme now works on the objective of Housing For All by 2022. Until now, about 83.3 percent of all households in India have access to a pucca house. On an average 95 percent of the top five front runner states have access to a pucca house, but the access to good condition houses in these five states is also abysmally low at 59 percent, though above the national average of 46 percent.

Clean Energy: For over three decades, successive central and state governments in India have made efforts to increase the penetration of clean cooking energy solutions like liquefied petroleum gas (LPG), improved biomass cookstoves (ICS), biogas plants and piped natural gas (PNG), among others. However, only 63 percent of the households in Indian states have access to clean fuel in India.

Nutrition: The index reveals that about 100 percent of the households in Kerala, Sikkim, Goa, West Bengal, Rajasthan, Manipur, Maharashtra, Gujarat, Himachal Pradesh, Arunachal Pradesh and Andhra Pradesh have access to food through PDS, while the state's average being 98 percent.

[26] Jamal. N, Chopra. T and Robert. K (2019). India's building more toilets, but what happens 'after the flush'?, World Economic Forum. https://www.weforum.org/agenda/2019/01/indias-building-more-toilets-but-what-happens-after-the-flush/

Despite having the access, 189.2 million people are undernourished in India and about 51.4 percent of women in reproductive age between 15 to 49 years are anaemic[27]. Even, the Global Hunger Index 2019 ranked India at 102 out of 117 countries on the basis of three leading indicators—prevalence of wasting and stunting in children under 5 years, under 5 child mortality rates, and the proportion of undernourished in the population[28].

Digital Access: Measured by the number of internet users[29] and mobile users[30] in the country, digital access can also be considered one of the basic amenities, especially in light of the covid-19 pandemic. Based on the survey conducted by IMRB in 2019, we find that on an average only 41 percent of the individuals in the Indian states are internet users, while 66 percent of the individuals are the main users of at least one mobile phone. The internet users in Goa, Punjab, Kerala, Sikkim and Haryana make up 59 percent, 56 percent, 59 percent, 38 percent and 51 percent of the population respectively. While the average amount of mobile users in the top five states is 68 percent of the population.

Jharkhand, Odisha, Tripura, Uttar Pradesh and Madhya Pradesh are the aspirants. Only 9 percent of the households in Jharkhand and 11.4 percent of the households in Odisha have access to drinking water. The access to water in latrines in these five states is below the average of all the states. Less than 30 percent of the households in these five states have access to "good condition" housing and on an average only 41 percent have access to clean fuel in these five laggard states.

In terms of UTs (see Figure 3.2 B), Chandigarh, Delhi and Puducherry are top performers. Performance of Chandigarh across all the indicators is extraordinary Approximately 98 percent of the household has water supply within the premise. 100 percent of the household in Chandigarh has access to both latrines and water in latrines. Access to sanitation, housing and nutrition in Delhi is also striking. Also, the internet and mobile users in Puducherry and Delhi is relatively high.

B) Access to Health care

The pillar captures various indicators that play an important role in accessing health care services in Indian states and UTs. The frontrunners (index value ≥0.57) are Goa, Tamil Nadu, Sikkim, Kerala, Himachal Pradesh, Mizoram, Andhra Pradesh, Punjab, and Karnataka. Nagaland, Assam, Jharkhand, Bihar and UP are some of the aspirants' states as can be seen in Figure 3.3A.

[27] The State of Food Security and Nutrition in the World, 2020
[28] The Global Hunger Index 2019
[29] Any individual who has accessed internet in last 3 months using any device
[30] Any individual who is the main user of at least one mobile phone

Table 3.2B: Inequality of What in Healthcare

	Health Insurance (%)	Access to postnatal healthcare (%)	Access to Antenatal care (%)	Institutional births (%)	Child immunisation coverage (%)	Number of government hospital beds (including CHCs)
Highest value	99.4 (Lakshadweep)	92.7 (Lakshadweep)	92.1 (A&N islands)	99.9 (Pondicherry)	91.4 (Pondicherry)	4.41 (Lakshadweep)
Lowest Value	10.4 (Assam)	22.3 (Nagaland)	14.4 (Bihar)	32.8 (Nagaland)	35.4 (Nagaland)	0.025 (Chandigarh)
Standard Deviation	24.87	16.5	21.7	15.50	14.62	88.7
All India Average	28.7	65.1	79.3	78.9	62	0.96
SDG Target/ Global Benchmark	100	100	100	100	100	3
Gap to universal access	71.3	34.9	20.7	21.1	38	2.04

There exists huge inequality in terms of affordability of healthcare services & availability of beds which are crucial indicators of access to health infrastructure among states. India has one of the least as well as most unequal access to health insurance which along with high medical out of pocket expenditure, makes healthcare inaccessible. With government's focus on maternal and child healthcare since Independence through multiple programs under National Health Mission, accessibility to maternal and child healthcare is relatively reached a high proportion of the targeted population.

Figure 3.3 A: Access to Health Care: Ranking for States

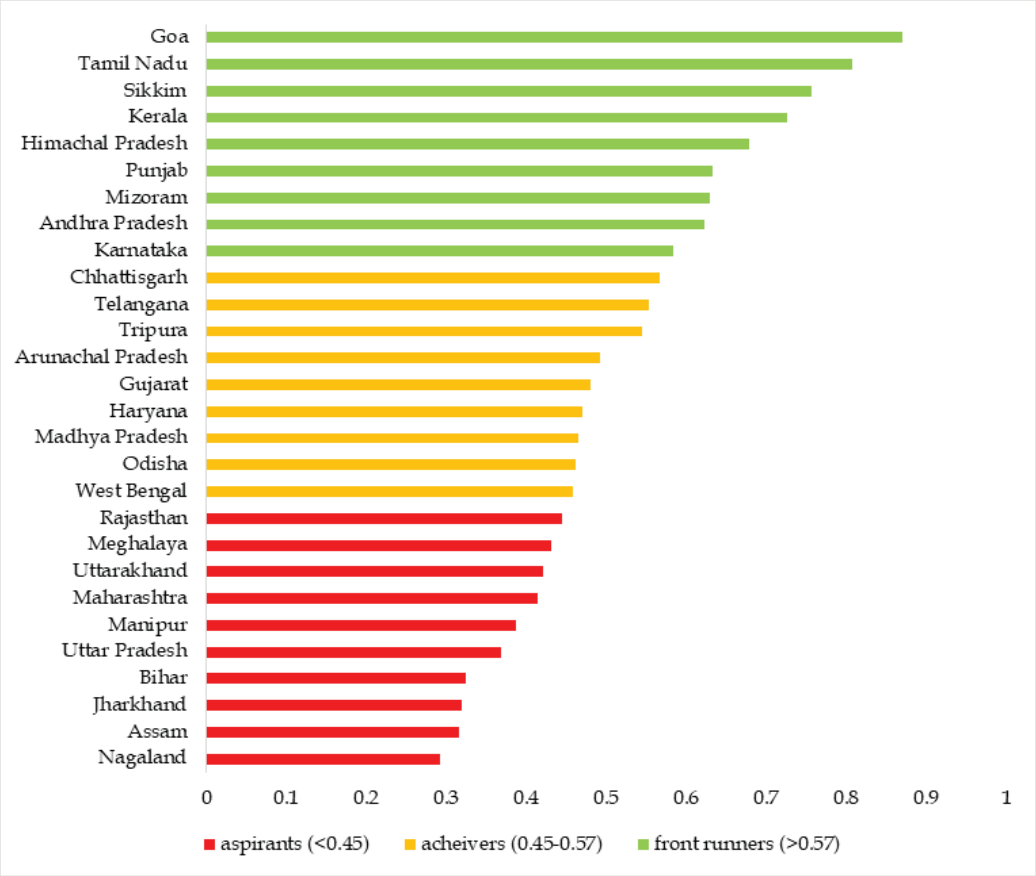
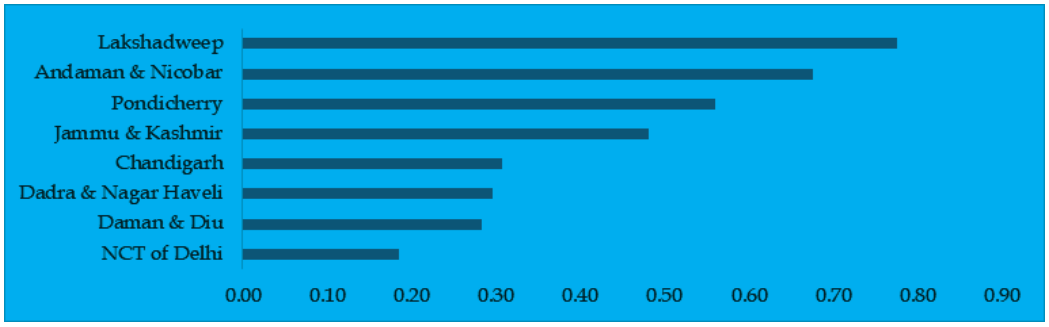


Figure 3.3 B: Access to Health Care: Ranking for UTs



There are various factors of access including affordability, availability, approachability, and appropriateness that are responsible for driving the performance of states and UTs. Major health outcomes such as life expectancy at birth and infant mortality rate depend on available means in terms of health facilities like hospitals, beds, and health-trained personnel. According to the Ministry of Health and Family Welfare (MFHW), there were approximately 39,000 government hospitals and 18,99,217 hospital beds available in the government hospitals in 2020. This amounts to 0.04 government hospitals and 0.96 government hospital beds available to per 1000 population of India. As per Human Development Report 2020, countries in very high human development category typically have 2.5-3.5 bed per 1000 population.[31] This presents a dismal picture of health care services available to the population of India.

The disparities across states are quite visible and all reflect the priorities of the state governments in making services and provisions available to its existing and potential voters. Public spending on health by Indian Government has been stuck at around 1 percent of GDP for close to 15 years and is one of the lowest in the world[32]. The public health expenditure per 1000 population is particularly low in Bihar, UP, MP, Jharkhand, and West Bengal. On the other hand, the average public expenditure allocated per 1000 population is highest in Arunachal Pradesh, followed by Goa, Sikkim, and Himachal Pradesh.

The availability of government hospital beds per 1000 population range between as low as 0.009 in UP to as high as 2.2 in Sikkim as can be seen in Appendix 3. In UTs, 4.4 hospital beds are available to the population (per thousand), followed by Andaman having 2.6 and Delhi having 0.2 hospital beds available.

The number of government hospitals is recorded the highest in UP (4454); however, it fails to meet the need of the large population. On an average, the top five states have 0.054 hospitals available to meet the needs of the population, which is higher than all the states' average. While the top five states have been successful in providing health care infrastructure and resources, their performance is still far below from the expected global or national standards.

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[31] Sub-Health Centre (Sub-centre) is the most peripheral and first point of contact between the primary health care system and the community.

[32] Mirza. A (2021). Country's medical system needs a revamp, Times of India. June 3, 2021. https://timesofindia.indiatimes.com/readersblog/marginalia/countrys-medical-system-needs-a-revamp-32872/#:~:text=Itpercent20i-spercent20apercent20factpercent20thatpercent20thepercent20governmentpercentE2percent80percent99spercent20spending,thepercent-20nextpercent20fivepercent20years.percent20Thatpercent20didpercent20notpercent20happen.

The recent pandemic was an eye-opener, given a large percentage of people faced difficulties in accessing services. In the wake of the pandemic, the importance of utilising Information Technology in delivering healthcare services has gained tremendous ground. The government has approved a total fund of INR 10189.42 for tele-consultation in 2021[33].

Sub-centers reflect the status of access to healthcare in rural India. Apart from availability, one of the factors that restricts the access to health care services is approachability. The long distances to health facilities or geographical access to health care is recognized as a significant barrier to institutional delivery in rural areas[34]. Measured by average radial distance covered by sub-center, we find that on an average 2.46 km of distance is covered by the sub-centers in the Indian states. Disparities at state level range from 4.26 km in Mizoram to 1.4 km in Kerala. A critical issue in delivering health care in the outreach areas, especially hilly and desert regions, is the "time-to-care".[35] The difficulty in ensuring "approachability" and "appropriateness" of healthcare infrastructure in such difficult terrain is reflected in the poor ranking of north-eastern states in this indicator.

Affordability is another barrier for accessing health care services in India. Average medical expenditure incurred for treatment during stay at any hospital (public/private/other) per case of hospitalization (excluding hospitalization for childbirth) in rural and urban areas is INR 16676 and INR 26475 respectively. This puts tremendous stress on individuals and households. Due to the high out-of-pocket healthcare expenditure, about 7 percent of the population is pushed below the poverty threshold every year[36].

Even access to health insurance and health schemes is not sufficient to meet the costs of accessing health services. On an average only 28.7 percent of the households are covered by a health scheme or insurance[37]. Out of the total number of persons covered under health insurance in India, three-fourths are covered under government-sponsored health schemes and the balance one-fourth are covered by private insurers[38]. The percentage of household covered through health insurance is lowest in Assam (10.4) and highest in Sikkim (88). In UTs, it is highest in Puducherry (91) followed by Lakshadweep (89) and Chandigarh (80).

The access to health care services is also gauged through the adequacies and appropriateness of the system. Central government in India propagates lifecycle approach through reproductive, maternal, newborn, and child health and nutrition (RMNCHA+N)[39]. Proper utilization of antenatal and postnatal care services plays an important role in reducing the maternal mortality ratio and infant mortality rate. On an average 57 percent of the mothers in 2015-16 had received postnatal care from a doctor/nurse/LHV/ANM/midwife/other health personnel within 2 days of delivery, while 63 percent received at least 4 antenatal care visits. Also, the delivery care like institutional birth (79 percent) reflects the access of mother to public health care facilities and health personnel. While the percentages across states have increased, it still remains unsatisfactory. The average institutional deliveries recorded by top five states is 93 percent, while access to. antennal and pre-natal services is 81 and 80 percent respectively. Only 65 percent of children in India receive full immunization during the first year of their life[40]. The disparities persist across states with UP, Bihar, Jharkhand, West Bengal, Nagaland, Assam, Arunachal Pradesh having received the least immunization coverage.

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[33] The Union Budget 2018 included a commitment under Ayushman Bharat of transforming 1.5 lakhs SHCs and the PHCs into the Health and Wellness Centres (HWCs) which will lay the foundation for India's health system as envisioned in the National Health Policy 2017. This is proposed to be done by December 2022

[34] Raj. A (2014). Saving lives through rural ambulance services: Experiences from Karnataka and Tamil Nadu states, India , Transport and Communications Bulletin for Asia and the Pacific No. 84, 2014 https://www.unescap.org/sites/default/files/Bulletinpercent2084_Article5.pdf

[35] RHS 2019, MoHFW

[36] Rao. N (2018). Who Is Paying for India's Healthcare?, Wire. April 14, 2018. https://thewire.in/health/who-is-paying-for-indias-healthcare

[37] Nfhs4

[38] https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_NoYearList.aspx?DF=AR&mid=11.1

[39] In 2013 the Ministry of Health & Family Welfare launched Reproductive, Maternal, Newborn Child plus Adolescent Health (RMNCH+A) to influence the key interventions for reducing maternal and child morbidity and mortality

[40] https://www.unicef.org/india/what-we-do/immunization

C) Access to Education

The average composite access to education sub-index score is .30 with a wide disparity across states, ranging from 0.47 in Punjab to 0.13 in Meghalaya. Figure 3.4A displays the Access to education sub-index scores for state and UTs. The top five front runner states based on the overall performance are Punjab (0.47), Goa (0.45), Himachal Pradesh (0.43), Sikkim (.41) and Kerala (0.37). Meanwhile the aspirants are Arunachal Pradesh (0.22), Jharkhand (0.21), Bihar (.20), Uttar Pradesh (.19) and Meghalaya (0.13).

Figure 3.4A : Access to Education : Ranking of States

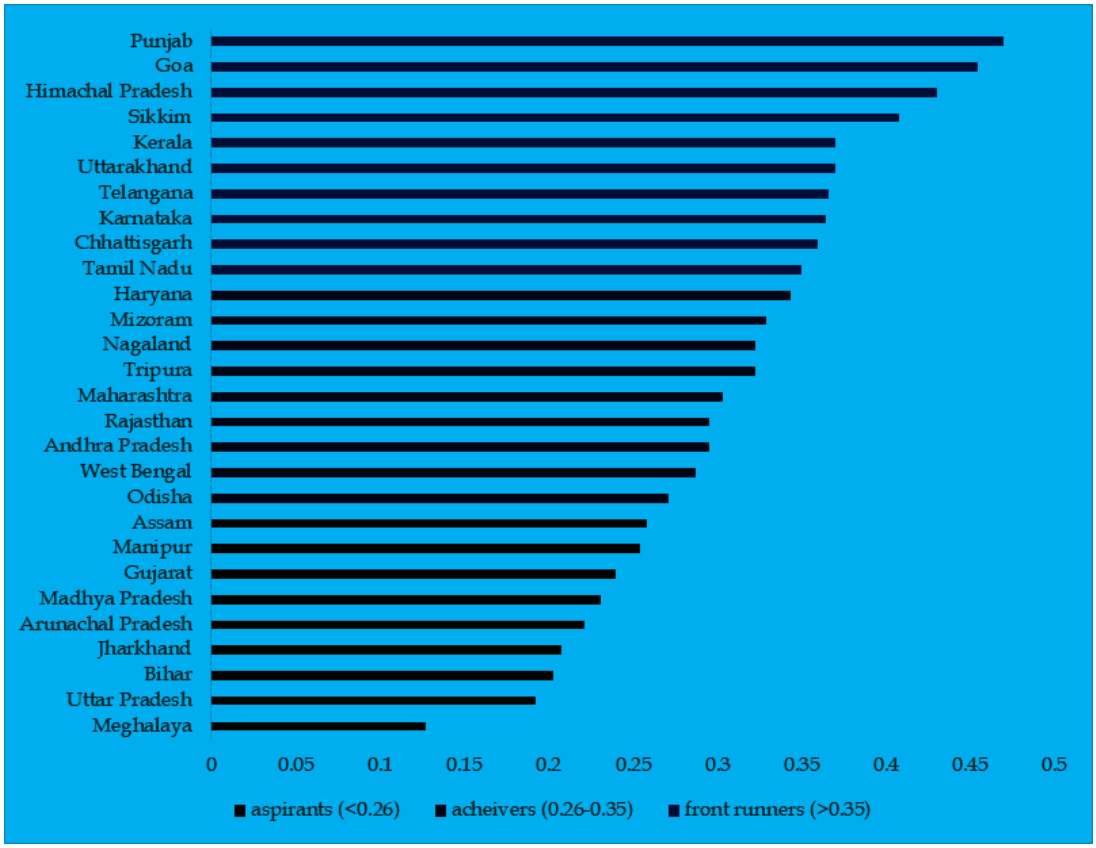
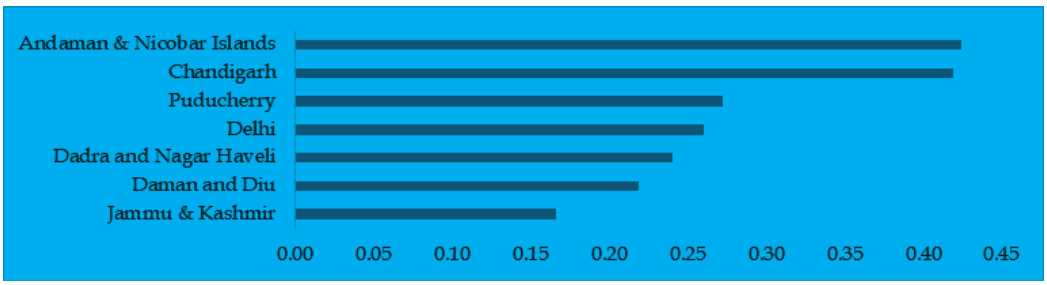


Figure 3.4 B : Access to Education : Ranking of UTs



Among the UTs[41], Andaman and Nicobar Islands (.42) and Chandigarh (.42) top the sub-index. In other words, they have the highest access to secondary education. Chandigarh has one of the lowest dropout rates (4.7), high net attendance ratio and availability of infrastructure (toilet with girls, internet, and functional computers in schools).

Net enrolment ratio in secondary education is highest in Punjab (81.5) and Kerala (74.1) among the states and in Delhi (72.3) and Chandigarh (63.2) among the UTs. Uttar Pradesh (37.2), Nagaland (36.9) and Bihar (34.7), on the other hand, have the lowest enrolment ratios in the states, with Puducherry (49.7) and Jammu & Kashmir (33.5) with lowest enrolment ratios among UTs. Due to various schemes initiated by the Central and state governments, along with the implementation of the Right of Children to Free and Compulsory Education Act, 2019, there is a significant improvement in terms of enrolment, especially in elementary education. However, the aim of universal access from all dimensions remains far for secondary and higher education levels.

Net Attendance Ratio (NAR) in Secondary Level is important to look at, as enrolment does not ensure education. Whether a student actually attends school or not after getting enrolled, depends on various socio-economic factors. Goa (92), Telangana (76.8) and Kerala (74.3) have the highest Net attendance ratio (NAR) among states, whereas Chandigarh (84) and Lakshadweep (75) top in UTs. Meghalaya (38) and UP (38.7) have the least NAR in states and Daman & Diu (59) and A&N (55) in UTs.

24.3 percent males and 17.7 percent females of age 3 to 35 years ever enrolled, currently not attending education report financial constraints as the major reason for not attending[42]. This shows how affordability is a crucial dimension for ensuring universal access to education. Due to economic constraints, 36.9 percent of males go to work instead of receiving any kind of education.

The sub-index also comprises of "Average expenditure per student in secondary education that a household pays" as one of the indicators in order to capture the affordability of education. The data is not a full representation of relative affordability in the state for education as the per capita income levels and urbanization levels vary a lot among states. For instance, states like Chhattisgarh, Assam, Odisha, Bihar and Jharkhand have the lowest average expenditure per student. Meanwhile, states like Goa, Haryana, Punjab have highest average expenditure. There is a strong correlation (0.54) between the per capita income of states and the average expenditure of the household[43]. The Rashtriya Madhyamik Shiksha Abhiyan-Technical Cooperation Agency (RMSA TCA) analysis of enrolment by household wealth shows that there are very large differences in access to secondary school. Private schools enroll as many as 30percent of those in secondary schools or about 15percent of all secondary age children. This puts a constraint on expanding access to secondary schooling since most households in the poorer half of the population will find private schools unaffordable, especially considering additional costs such as private tuitions[44].

Apart from affordability, social factors like pre-defined patriarchal roles of men and women prevent about 30 percent girls, especially adolescent girls, from attending school by engaging them in domestic activities instead. Availability of girl's toilet in schools is a crucial indicator representing the appropriateness of the infrastructure. "Education for girls can be supported and fostered by something as basic as a girls-only toilet," (UNICEF, 2005). This is a very important means in ensuring access to education to girls and especially at secondary level to ensure menstrual hygiene.

Average annual dropout rate at secondary level in 2019-20 has been the lowest for smaller states like Punjab (1.6), Himachal Pradesh (7.2), Uttarakhand (8.4) and UTs like Chandigarh (4.7) and Lakshadweep (6.7). Punjab has done remarkable well in improving the access to secondary schooling, with good infrastructure facilities which is reflected in various indicators such as low dropout rate, and high enrolment. It has also registered a zero-dropout rate for girls at the secondary level which is highly correlated with a high percentage of schools with girl's toilet.

[41] Lakshadweep is excluded from rankings due to missing data on all indicators
[42] NSS KI (75/25.2): Key Indicators of Household Social Consumption on Education in India
[43] Equity in Learning: A Way Forward for Secondary Education. https://keithlewin.net/wp-content/uploads/2016/05/0.-Synthesis-Equity-in-Access-and-Learning-in-India.pdf
[44] MoHRD, GoI, RMSA-TCA - Equity in Access and Learning

North-eastern states, on the other hand, have the highest dropout rates: Tripura (26.7), Assam (32.3) and Arunachal Pradesh (34.3) . Interestingly, Tripura has one of the highest Net Enrolment Ratio (73.8) as well in secondary education. Thus, permanence of access is limited. UDISE report shows that highest dropout rate at exists at the secondary level.

Pupil Teacher ratio (PTR) indicator adds to the appropriateness or quality dimension. PTR varies from 51.8 in Bihar to 7.5 in Himachal Pradesh. As per the Unified District Information System For Education Plus (UDISE+) 2019-20, the PTR at national level for all schools and for Government schools at secondary level is 19. The required student-teacher ratio in government secondary schools, according to Rashtriya Madhyamik Shiksha Abhiyan (RMSA) framework, should be 30:1. Bihar, Jharkhand and Gujarat are the only 3 states which do not meet this requirement.

The appropriateness dimension is also captured by looking at the **percentage of schools teaching vocational courses** at secondary level. This is important as secondary level having the highest dropout rate must at least equip the students with appropriate skills to enter the job market as per the demand. In absolute terms, UP (32,409), Rajasthan (31,034) and Maharashtra (28,093) have the highest number of schools offering vocational education at secondary and higher secondary level. But the report looks at percentage of schools, which is highest in Sikkim, Goa and Arunachal Pradesh and lowest in Uttar Pradesh, Uttarakhand and Bihar. Among UTs, Andaman and Nicobar Island has the highest percent of secondary and senior secondary schools with vocational course and Puducherry least.

Per capita spending by the state governments on secondary education is crucial in assessing the priority of governments in ensuring universal access to secondary education. Average expenditure on secondary education for 2018-19 in state budgets was divided by total population aged 14-15 years to derive per capita spending for the relevant population. This is highest for Sikkim followed by Uttarakhand and Goa and lowest for Jharkhand, Bihar and Uttar Pradesh among states. Lakshadweep and Chandigarh have the highest and lowest per capita spending on secondary school by the government (see Appendix 4).

Table 3.2C: Inequality of What in Education

	Average annual drop out rate in secondary level	Net Enrolment Rate	Net Attendance Ratio in Secondary Level	Schools with Girls Toilets	Pupil-Teacher Ratio at secondary level	Access to computer facility in schools	Access to Internet facility in schools
Highest score	1.6 (Punjab)	81.5 (Punjab)	92 (Goa)	100 (Multiple)	5.1 (Lakshadweep)	99.1 (Chandigarh)	97.3 (Chandigarh)
Lowest Score	34.3 (Arunachal Pradesh)	33.5 (J&K)	38.7 (Uttar Pradesh)	77 (Meghalaya)	51.8 (Bihar)	12.7 (Assam)	5.8 (Assam)
Standard Deviation	23.12	33.94	37.68	16.26	33.02	61.11	64.74
All India Average	16.1	50.2	57.6	93.92	18.5	38.54	22.28
SDG Target/ Benchmark	8.8	100	100	100	30	100	100
Gap to universal access	-7.3	49.8	42.4	6.08	- 11.5	61.46	77.72

Digital readiness of schools is highly unequal whereas access to toilets for girls least unequal and nearing universal access. Pupil teacher ration in secondary education on an all-India average is better than RMSA benchmark. Net enrolment rate is nowhere near meeting the target of universal secondary education.

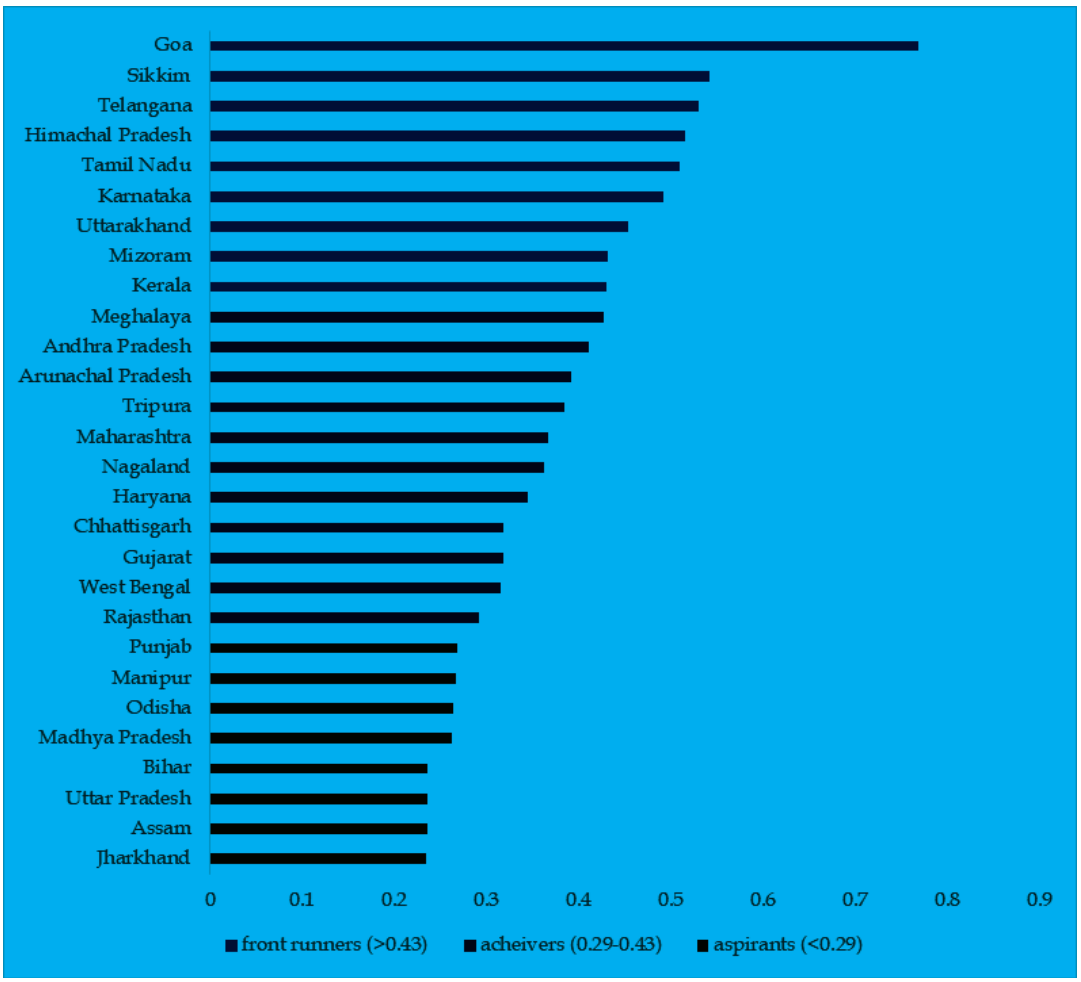
Studies show that the recent pandemic has further widened the educational inequality in India. Thus, the study tries to look at the accessibility to education through digital means. For the academic year 2019-20, UDISE+ has revealed that 22 percent of all schools had internet facilities and about 37percent had functional computers. This reflects the low penetration of digital infrastructure required for digital education. Among the states, Kerala, Chhattisgarh and Tamil Nadu have the highest percent of schools with functional computer facility, whereas Assam, Meghalaya, and Madhya Pradesh have the least.

D) Access to socio-economic security

Access to social security or protection is necessary to reduce vulnerability of citizens when at risk and enhance their capacity to manage those. These risks include unemployment, exclusion, sickness, disability, and old age. However, government-controlled social security structure in India applies to only a small portion of the population with the overall public expenditure on social protection (excluding public healthcare) being approximately 1.5 percent of the GDP[45], which is lower than many middle-income countries across the world.

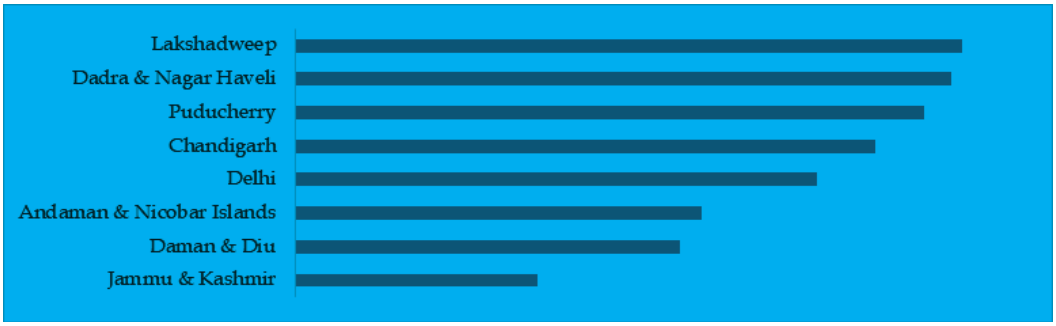
Access to socio-economic security Sub-Index Score ranges between .77 and .24 for states. Goa and Lakshadweep are the top performers among the States and the UTs respectively as can be seen in Figure 3.5A and 3.5B. Sikkim, Telangana, Himachal Pradesh, and Tamil Nadu are other front runners for provision of access to social, financial, and economic security. Additionally, among the states, Jharkhand, Assam, and UP have the least access to socio-economic security while among UTs, J&K and Daman & Diu rank the last.

Figure 3.5 A: Access to Socio-Economic Security : Ranking of States



[45] International Labour Organization. World Social Protection Report 2014-15

Figure 3.5 B: Access to Socio-Economic Security : Ranking of UTs



In terms of access to financial security, which is captured through the coverage of Commercial Banks, ATMs and active bank accounts, Goa performs remarkably well. Among UTs, Lakshadweep has the highest ATMs per 1,00,000 population (97.06) whereas Chandigarh has the highest approachability of commercial banks. Under Pradhan Mantri Jan Dhan Yojana (PMJDY), 99.99 percent of the targeted households in the country have been covered by bank accounts, as of 2020 with only few states including J&K and Assam missing their target. As of September 2020, there are 12 banking outlets and 17 ATMs per 1,00,000 population in the country[46] (see Appendix 5).

Access to decent work as measured by employment opportunities serve as a crucial link between socio-economic growth and equality. Access to decent work is an important indicator which is a "means" to raise income, demand, quality of human capital and thus fuels a more inclusive and sustainable economic growth. There is evidence which suggests that improving MGNREGA implementation (by reducing leakage, payment delays and uncertainty) led to a substantial reduction in rural poverty and long-term benefits including increase in credit, assets, number of non-agricultural enterprises, and employment in these enterprises[47]. North-eastern states – Mizoram, Nagaland, Meghalaya and Manipur along with Goa provide the highest access to rural employment under MGNREGA against demanded whereas Bihar, Punjab and Chhattisgarh need to work the most in order improve economic security.

Employment opportunities are also measured through WPR. PLFS (2018-19) data shows that in the rural areas, the maximum WPR for persons (including both females and males) in the age group of 15 years and above has been obtained in Himachal Pradesh and Dadra & Nagar Haveli among states and UTs respectively. Himachal Pradesh (63.9), Meghalaya (61.8), Chhattisgarh (61.2), Sikkim (61.1) top the sub-index for WPR since these states also have the highest access to work to women.

Coverage of social security benefits: In the non-agricultural sector in India, approximately half of the regular wage/salaried employees do not have any social security benefits. Mizoram with 88.6 percent regular wage/salaried employees having social security benefits and Lakshadweep at 86 percent are the best performers among states and UTs respectively. At the same time, Punjab and Delhi have the lowest access to social security benefits among their respective categories. To measure access to social security, the report also looks at access to insurance through coverage of ESI and Life insurance. India has low insurance penetration of 3.69 percent and density at USD 73 respectively for FY2017-18 (IRDAI, 2019). Telangana, Uttarakhand and Karnataka have the highest coverage of Life Insurance among states whereas Delhi and Puducherry are top performers in terms of life insurance coverage among UTs.

[46] SDG report 3.0

[47] Muralidharan. K, Niehays.P and Sukhtankar. D (2021). General equilibrium effects of (improving) public employment programs: experimental evidence from India, September 6, 2021. https://econweb.ucsd.edu/~kamurali/papers/Workingpercent20Papers/NREGS_GEpercent20(Currentpercent20WP).pdf

Within the insurance schemes, the state-owned health schemes are the most subscribed, followed by the Employee State Insurance Scheme.

Access to assistance to disabled/divyang: As per Census 2011, 2.68 crore persons were enumerated as 'disabled' which was 2.21 percent of the total population. Out of total disabled person, 69percent reside in rural areas whereas 31percent in the urban areas.[48] Accessible India Campaign is a nation-wide campaign for achieving universal accessibility[49] for Persons with Disabilities (PWDs) along with various state level initiatives for providing assistance to divyang.

Challenges in improving access to financial services, employment opportunities, reducing informal employment, labour market inequalities, gender discrimination, lack of social protection and decent wage persist across states and needs to be prioritized by the state governments.

Table3.2D: Inequality of what in Socio-economic security

	Active bank account	Functioning branches of Commercial Banks	Number of ATMs	Worker Population Ratio	Access to MNREGA	Access to social security when employed	Access to public assistance to disabled/ divyang
Highest score	100 (Multiple)	45.78 (Goa)	97.06 (Lakshadweep)	68.6 (Dadra & Nagar Haveli)	99.9 (Mizoram)	88.6 (Mizoram)	61.2 (Puducherry)
Lowest Score	99.7 (Manipur)	6.37 (Bihar)	6.84 (Bihar)	29.5 (Lakshadweep)	77.09 (Chhattisgarh)	29.7 (Punjab)	5.9 (Arunachal Pradesh)
Standard Deviation	0.2	27.86	63.79	27.64	16.14	41.64	39.1
All India Average	99.9	11.69	17.31	47.3	84.44	48.1	25.6
SDG Target/ Benchmark	100	31.26	42.65	68.3 (for LFPR)	98.95	100	100
Gap to universal access	0.1	19.57	25.34	21	14.51	51.9	74.4

India fairs much better in terms of providing equal and universal access to active bank accounts among states, though needs interventions towards achieving universal public assistance to divyang. ATM coverage is highly unequal among states followed by access to social security for employed persons.

E) Access to Justice

Much like the other indicators discussed above, the role of infrastructure (physical and digital) and human resource in accessing justice is not only imperative for peace, stability and effective governance but is also detrimental to timely justice. The findings from the index indicate that Sikkim, Nagaland, Tamil Nadu, Goa, Kerala, Andhra Pradesh, Himachal Pradesh, Gujarat, Telangana and Maharashtra are front runners. Some of the aspirant states include Uttarakhand, Meghalaya, Jharkhand, Karnataka, and Assam. The index values for the achievers' range between 0.32-0.38 as can be seen in figure 3.6A below. Delhi, Chandigarh, and Puducherry are the best performers among UTs (figure 3.6B)

[48] http://www.nhfdc.nic.in/upload/nhfdc/Persons_Disabilities_31mar21.pdf

[49] Department of Empowerment of Persons with Disabilities (DEPwD) refers to accessibility as a barrier free environment for independent, safe and dignified living of Persons with Disabilities

Figure 3.6A : Access to Justice : Ranking of States

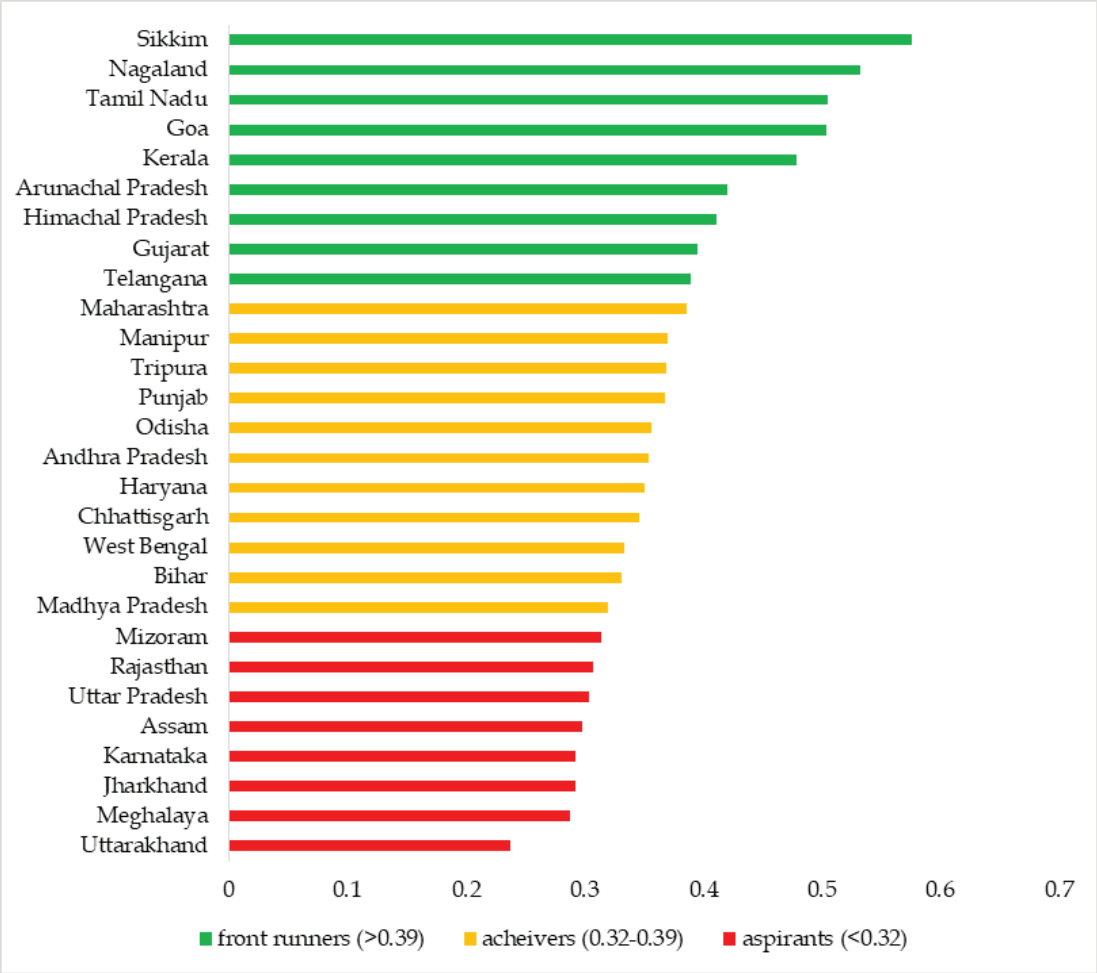
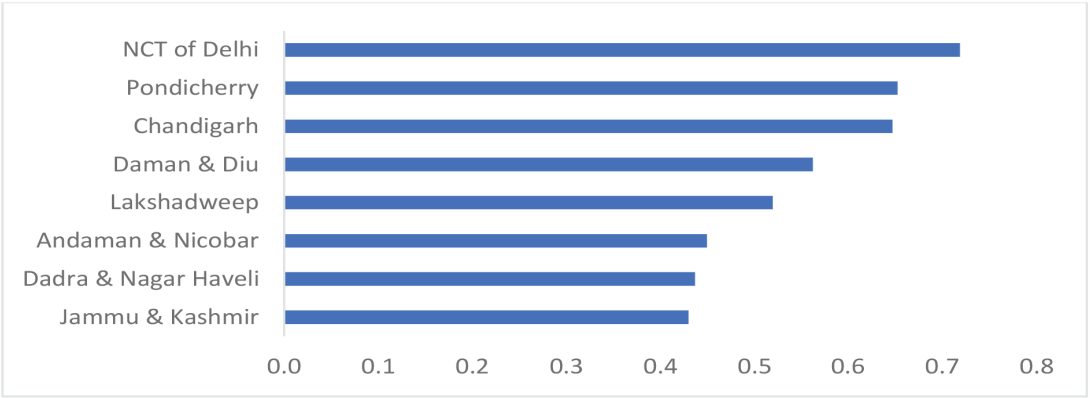


Figure 3.6 B : Access to Justice : Ranking of UTs



The police and judges are the frontline service providers for maintaining law and order and granting justice respectively. In India, human resources that measure the police and judge capacity[50] are understaffed and insufficient against the population. We cover various indicators to gauge this including available police and judge strength measured against sanctioned strength to assess the existing vacancies and police and judge population ratio to assess the strength against population.

The data indicates state level that the number of police per lakh population at all India level averages at 221.4, slightly below the United Nation's recommended ratio of 222[51]. However, state level disparities indicates that states such as Bihar, Karnataka, Uttarakhand and West Bengal has less than 100 police personnel per lakh population. What is astonishing is that the share of women police personnel across states and UTs is 10 percent which is way below the recommended level of 33 percent[52]. Except for seven states including Tamil Nadu, Goa, Himachal Pradesh, Gujarat, Maharashtra, Bihar and Uttarakhand; the share of women in police are below 10 percent. Bihar has the highest share at 25.03 percent.

The pendency in the police is also reflected in the vacancy rate. Vacancies are highest in Uttarakhand and Maharashtra while Nagaland and Dadra and Nagar Haveli have no vacancy. Delhi reports the highest vacancies among the UTs.

As in the case of police, the lack of resources is also reflected in the justice system. The availability of judges to cater to the needs of the population in Indian states are low. There are 49 judges per 1000 population. The population per high court judge is as low as 2,41,818 in Sikkim to as high as 47,55,909 in Andhra Pradesh. The lower the population load on a high court the better the states ranking are. The shortage of women judges is also a concern. On average, Indian states have 10 percent women judges while UTs have 16 percent women judges available in the high court. "Lack of adequate representation of women in judiciary and the trend of 'corporatizing' the legal profession has put access to justice beyond the common man's reach[53]".

Even the high court judge vacancy rate is high in Indian states. Only Sikkim and Puducherry have less than 20 percent vacancy rate, with the highest vacancy being observed in Andhra Pradesh at 70.3. The continuous vacancy of more than one-third of sanctioned posts is a worrying trend when it comes to the administration of justice in India. While there can be many possible causes for vacancies, the collegium system is especially to be blamed.

[50] Please refer to Indian Justice Report 2020 for the data

[51] Devulapalli. S and Padmanabhan. V (2019). India's Police Force amonf the world's weakest, Livemint. June 19, 2019. https://www.livemint.com/news/india/india-s-police-force-among-the-world-s-weakest-1560925355383.html

[52] Women Police Personnel Count at 10.30percent, 'Matter of Concern', Says MHA, News18. August 12, 2021. https://www.news18.com/news/india/women-police-personnel-count-at-10-30-matter-of-concern-says-mha-4078133.html

[53] Balaji. R (2021). CJI Ramana expresses concern over lack of adequate representation of women in judiciary, The Telegraph Online. September 18, 2021. https://www.telegraphindia.com/india/cji-ramana-expresses-concern-over-lack-of-adequate-representation-of-women-in-judiciary/cid/1829399

Court hall shortfalls and availability of police stations are a reflection of availability of infrastructure to the population. Logic demands that for every judge there must be a physical courtroom. Approximately 14 percent of the judges in India do not have a court hall. As per the Indian Justice Report, 2020 "if the full complement of sanctioned judge strength were appointed, there would be a shortfall of 3,343 court halls"[54]. There are 16 states and Union Territories where the shortage in court halls against sanctioned judges is below 10 percent including Andhra Pradesh, Chhattisgarh, Gujarat, Kerala, Tamil Nadu, Telangana, Goa, Sikkim, Chandigarh, Daman and Diu, Dadra & Nagar Haveli, Lakshadweep, and Puducherry.

The population covered by one police station also varies greatly from state to state. The number of police stations available across India is 0.012 per thousand population. It ranges from being as low as 0.0065 in West Bengal to as high as 0.861 in Arunachal Pradesh. In several states, the average population per police station is lower in rural locations than in urban locations.[55]

Infrastructure has not kept pace with the growing inmate population as well. While the overall prison population reported to be 4,78,600, the number of prisons is reported to be 1350 in 2019. There are various factors including "unnecessary arrests, conservative approaches to granting bail, uncertain access to legal aid, delays at trial, as well as the inefficacy of monitoring mechanisms such as Under Trial Review Committees which combined contribute to overcrowding[56]." The most overcrowded prisons are in Delhi (175) followed by UP (168), Uttarakhand (159), Meghalaya (157) and Chhattisgarh (150).

Table 3.2E: Inequality of what in Justice

	Share of women judges	Share of women in police	Population per civil police person	High court judge vacancy	Courthalls shortfall	Prison occupancy	Access to Digital Infrastructure
Highest score	33.3 (Sikkim)	25.3 (Bihar)	1,759 (Dadra & Nagar Haveli)	70.3 (Andhra Pradesh)	45.4 (Meghalaya)	175 (Delhi)	90 (Himachal Pradesh)
Lowest Score	0 (Bihar)	3.6 (J&K)	118 (A&N)	8.3 (Sikkim)	(33.3) (daman&diu)	6 (Lakshadweep)	0 (Mizoram)
Standard Deviation	7.29	4.59	359.12	12.32	16.24	38.33	32.14
All India Average	11.03	10	712	40.8	11.45	103.47	60.2
SDG Target/ Benchmark	33	33	450.5	0	0	below 100	100
Gap to universal access	21.97	23	-261.5	-40.8	-11.45	-3.47	39.8

Prison occupancy & access to online legal services has the highest inequality among states, whereas India has one of the most overburdened police force in the world. Share of women in police and judiciary is significantly low but remains low across all states in India, therefore, relative deviations among states is low.

[54] India Justice Report , 2020. https://www.tatatrusts.org/Upload/pdf/ijr-2020-overall-report-january-26.pdf
[55] Ibid.
[56] Ibid.
[57] Filing of Complaints to the concerned Police Station., Obtaining the status of the complaints, Obtaining the copies of FIRs, Details of arrested persons/ wanted criminals, Details of missing/ kidnapped persons and their matching with arrested, unidentified persons and dead bodies, Details of stolen/ recovered vehicles, arms and other properties, Submission of requests for issue/ renewal of various NOCs. Verification requests for servants, employment, passport, senior citizen registrations etc. and Portal for sharing information and enabling citizens to download required forms.

The overburdened staff is also reflected in the inmate per officers. More than 100 prisoners are assigned to an officer in 10 Indian states and UTs, with the highest burdened officer being observed in Jharkhand (381), Bihar (337), Uttarakhand (331) and Chhattisgarh (266). 15 states and UTs in India has relatively low inmate per officer, with the lowest observed in Nagaland.

As a result of persisting vacancies and inadequate infrastructure combined with the continuous inflow of cases inevitably impacts mounting pendency and the time taken for cases to resolve. The proportion of civil and criminal cases that have been pending from 0-1 years in court is as low as 0.0158 in Sikkim to as high as 0.073 in West Bengal. The police pendency cases are highest in Gujarat and lowest in Manipur.

To overcome challenges in these existing resources, the National Legal Services Authority (NALSA) had directed all legal aid clinics to have front offices available for interaction with those seeking legal assistance. There were only nine states and UTs where a legal services clinic covered, on average, less than 10 villages. In Uttar Pradesh, a legal service clinic serviced, on average, as many as 520 villages, while Odisha covered 302 villages. To achieve more transparency, every state has also developed a citizen's portal to promote accessibility. The data reveals that none of the portal offered all nine services[57]. Punjab and Himachal Pradesh were the only two states who scored 90 percent.

The five pillars explained in the report examines the "inequality of what" across Indian states and UTs. However, inequality persists across region, caste and gender. The section below provides a detail commentary on some of the disparities that persist across regions and section of the societies.

4. Equality of Whom?

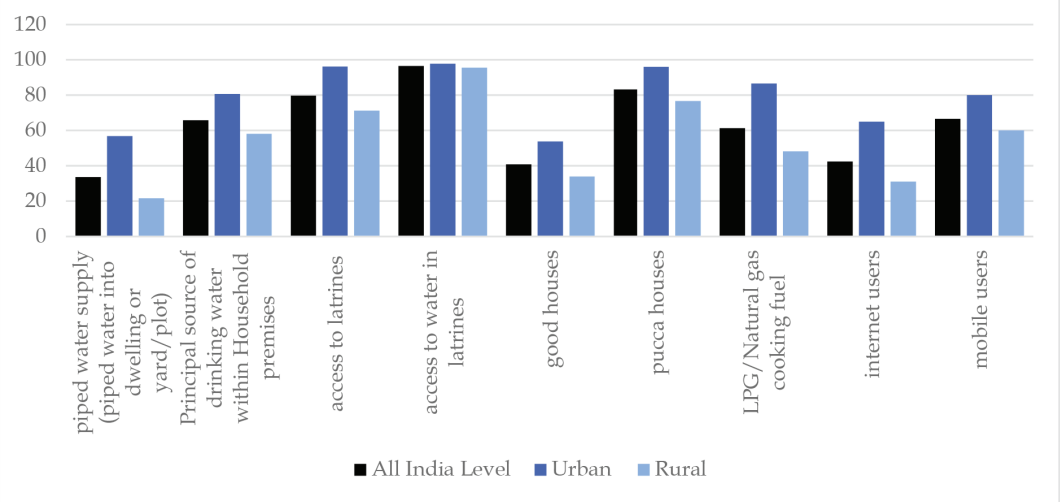
4.1. By Area of Residence: Rural – Urban

Where people reside have a strong impact on their opportunities, including access to basic amenities, health care, education, decent work and other goals envisioned in the 2030 Agenda of SDG. Inequalities related to location are also known as "spatial inequalities". In India, the discourse on divide between Bharat and India is not new. Based on population projections of MoHFW, around 65.8 percent of Indian population resided in rural areas in 2020, thus, a majority of India still lives in its villages. In totality, access to opportunities and resources has a clear spatial dimension: people in rural areas are worse off than urban populations. Spatial Disparities among pillars is detailed below:

A) Basic Amenities

There exists a gap between rural and urban population in terms of access to all basic amenities considered in this report, with rural population at the disadvantaged position. This can be seen from the figure 4.1 below:

Figure 4.1: Access to Basic Amenities



Source: NSSO 75th round report

Drinking water: Though about 87.6 percent of the households in the rural and about 90.9 percent in the urban areas had sufficient drinking water throughout the year but looking at the angles of approachability and appropriateness of access to the drinking water supply, there exists wider disparity between the two. In fact, it is what is mainly driving the disparities across the states as can be seen in the Appendix 6a and 6b. On an average, only 21.6 percent of the household in rural areas of the states have access to piped water supply in the dwelling or the plot/yard, while 56.9 percent of urban households have such proximate access to piped water supply.

Access to Sanitation: While access to sanitation has increased over time, the rural-urban divide persists widely across several states (Appendix 7a and 7b). People residing in urban areas have a relatively higher access to unshared and quality sanitation facilities in a majority of the states based on data from NFHS 4. In urban India, slums present a challenging case for access to sanitation and water supply, as one-fifth of urbanites live in slums, according to 2011 Census. There exists space and financial constraints along with behavioral barriers to ensure household level access to toilets and water supply.

Access to Housing: The regional disparities especially in access to decent housing is visible in both urban and rural areas (See Appendix 8). Among the households living in houses, about 76.7 percent of the households in the rural and about 96.0percent in the urban areas had a house made of pucca structure.

Clean energy: While overall energy access of Indian households has improved rapidly over the past decade, access to clean fuel is still low as compared to electricity. About 48.3 percent of the households in the rural and about 86.6percent in the urban areas used LPG as fuel for cooking. Significant disparities exist in LPG access among the states and between rural-urban areas across states, as seen in Appendix 9.

Digital Infrastructure: Nearly 31 percent of rural population and 65percent of urban population are internet users whereas the inequality gap is lower for mobile users between rural and urban, with 60 percent of rural population and 80 percent urban population being user of at least one mobile phone.

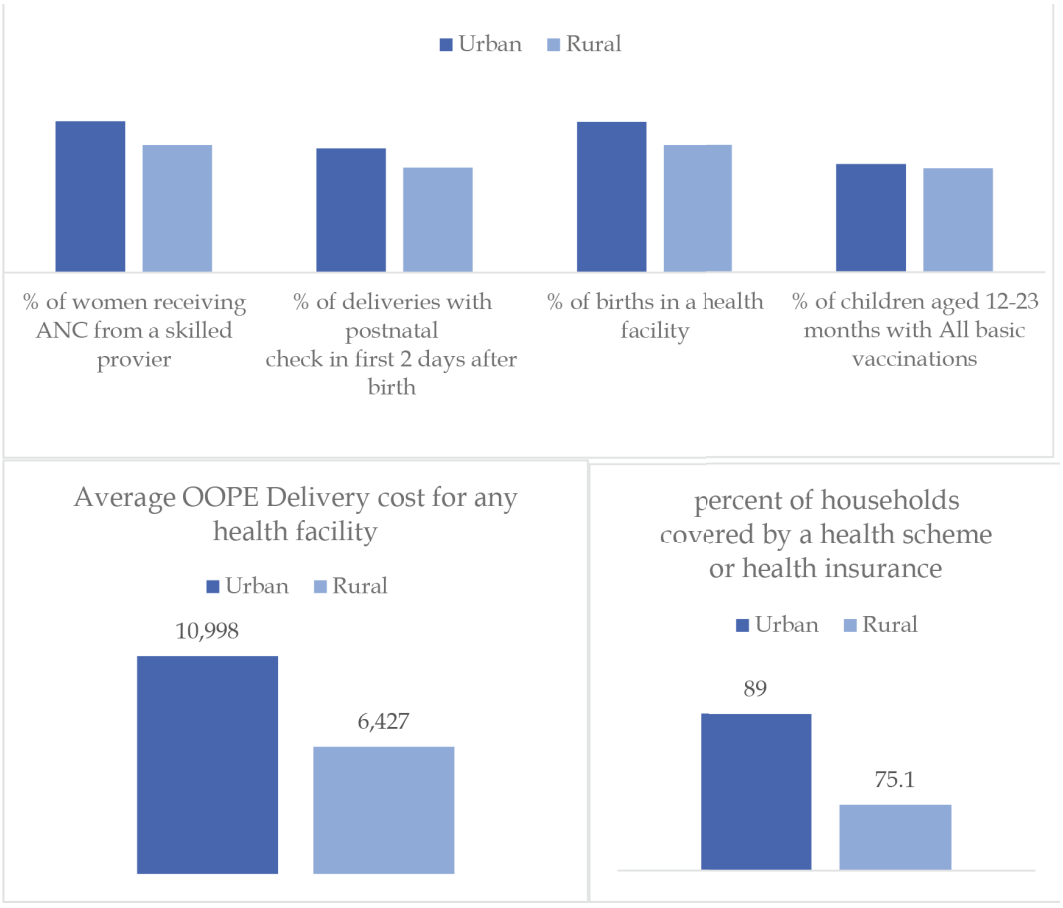
[58] India's great healthcare challenge, also an opportunity | Latest News India - Hindustan Times

B) Access to Healthcare

National Commission on Macroeconomics and Health (NCMH) reports that about 80 percent of health infrastructure, medical manpower and other health resources are concentrated in urban areas where only 31 percent of the population lives. Access to health care is asymmetric between rural and urban India, mainly because the latter has a higher concentration of private healthcare providers, while rural residents predominantly access public hospitals. India meets the global average in number of physicians, but 74 percent of India's doctors cater to a third of the urban population.[58]

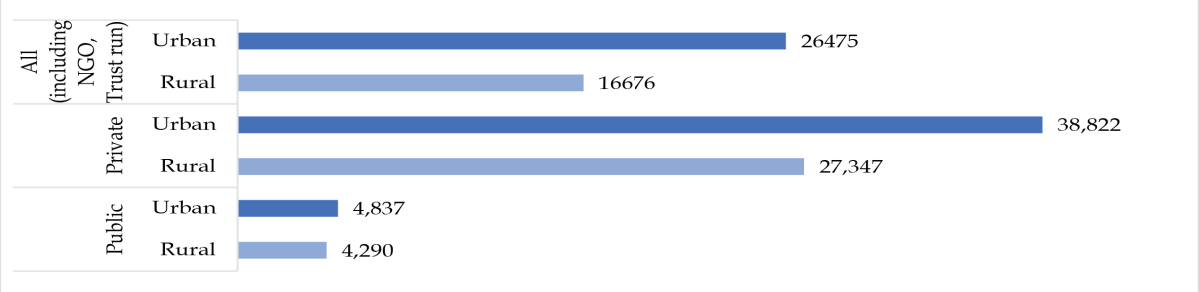
Data from the National Family Health Survey (2015) shows the degree of inequality that exists in maternal and child health care namely full antenatal care (full ANC), skilled attendants at birth (SBA), and postnatal care (PNC) in rural and urban India. As compared to other pillars, healthcare divide in the domain of maternal and childcare is not significantly wide except for the financial access in terms of higher Out-Of-Pocket Expenditure (OOPE) and lesser insurance coverage in rural areas. The evidence for rural-urban health divide is presented in the Figure 4.2 below.

Figure 4.2: Access to Maternal and Child Care: Rural -Urban



Source : NFHS 4

Figure 4.3: Average medical expenses (Rs.) during hospital stay per case of hospitalization



Source: NSS 75th Round Report

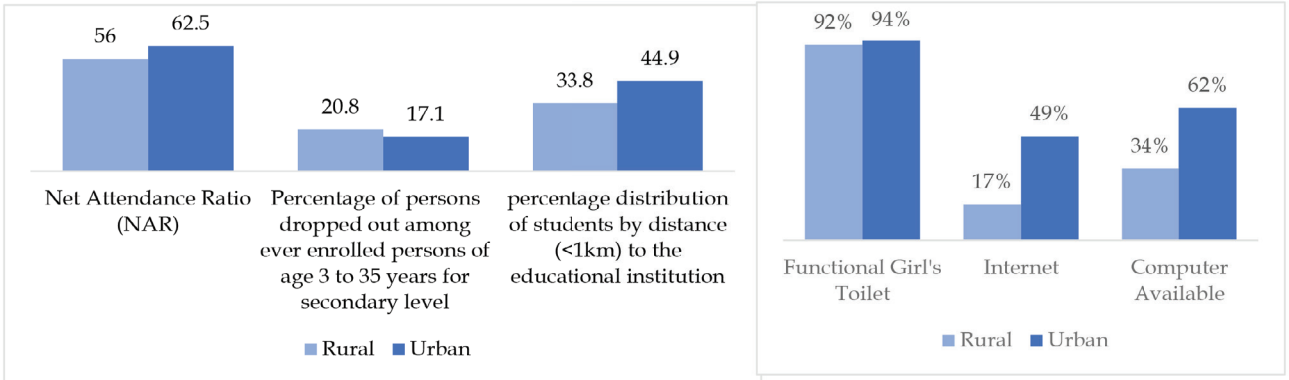
As per NSS data, average medical expenditure per hospitalization case (excluding childbirth) in rural India is about Rs. 16,676 and Rs. 26,475 in urban India, indicating the divide between affordability (See Appendix 10).

C) Access to Education

In terms of physical access to secondary schooling, NSS data shows that in 2014, more than 12 percent of rural households in India did not have any secondary schools within 5 kilometers whereas in urban areas such cases are insignificant (less than 1percent). While in 2017-18 (NSS 75th Round), about 38 percent of rural households compared to around 70 percent of urban households reported secondary schools within 1 km of distance.

Rural areas witness higher dropout rates and lower net attendance ratios due to various socio-economic factors. At secondary level NARs were 56.6 percent in rural and 61.5 percent in urban for males and 55.2 percent in rural compared to 63.7 percent in urban areas for females.

Figure 4.4: Access to education – rural urban divide



Source: UDISE+ Dashboard 2020, NSS 75th Round Report (2018)

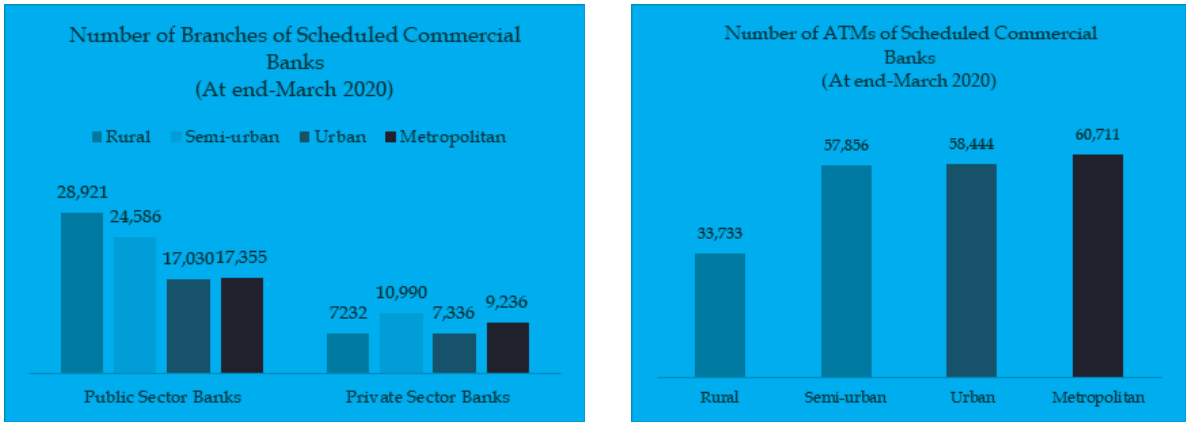
The quality or appropriateness of the school infrastructure in rural and urban areas varies in terms of availability of infrastructure and facilities like girls' toilets, functional internet, and computer facilities as shown in Figure 4.4.

D) Access to Socio-Economic Security

The essence of financial inclusion is to ensure universal delivery of financial services which includes – active and functional bank accounts, low-cost credit, financial advisory services, insurance facilities (life and non-life) etc. Banking can be defined as a basic infrastructure as it provides crucial means to enable any individual or a household economically, even socially.

Public sector banks have 33 percent of their branches and 20 percent of ATMs in rural areas, while private sector banks have 21 percent of their branches and 8 percent of ATMs in rural areas.

Figure 4.5: Access to Financial Services



Source : RBI

E) Access to Decent Work

Based on PLFS 2018-19, WPR was about 35.8 percent in rural areas and 34.1 percent in urban areas. Among persons of age 15-29 years, WPR was 31.7 percent in rural areas and 30.9 percent in urban areas. State-wise disparities in rural urban WPR is depicted in Figure A9. Among states, Himachal Pradesh has the highest rural WPR whereas Sikkim has the highest urban WPR. Bihar has the lowest WPR both in rural and urban areas.

Delhi has the least amount of social security cover for rural region, whereas among states, Jharkhand has the least for rural areas. North- eastern states – Arunachal Pradesh, Nagaland and Mizoram have the highest coverage for social security in rural areas. Punjab on the other hand, has the least social security coverage for employment in the urban areas. Manipur and Mizoram perform the best (see Appendix 11).

Indeed, employment opportunities are higher in rural areas, but the social security coverage which is provided as part of formal employment in non-agriculture sector is higher is urban areas (50.6), given that formal employment is higher in urban areas (See Appendix 12). 44.1 percentage of regular wage/ salaried employees in rural areas are eligible for any social security benefits[59].

F) Access to Justice

Overall access to justice is skewed against individuals residing in the rural parts of India as courts, police stations, and legal aid institutions are situated in urban areas. In 1981, the National Police Commission suggested that the average area covered per rural police station should be 150 sq. Km. Contradictorily

[59] PLFS Annual report 2018-19

current data shows that average area covered per rural police station is about 400 sq.km. Even the population covered by the police stations varies across rural and urban areas (see Appendix 13 and 14).

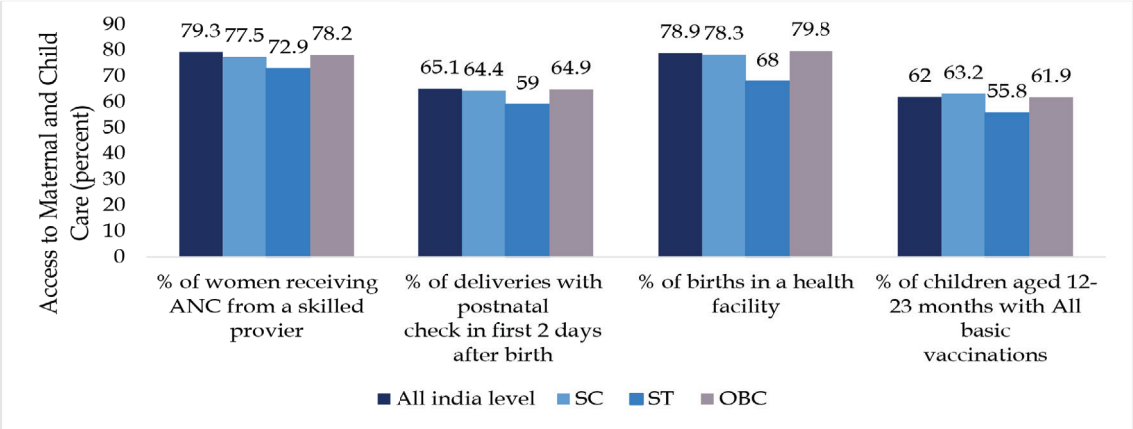
4.2. By Caste Groups: SC, ST, OBC

India is one of the most unequal countries in the world with the top 10 percent controlling 55 percent of the total wealth, up from 31 percent in 1980, according to the 2018 World Inequality report. The National Family Health Survey 2015-16 (NFHS-4) shows that 45.9 percent of ST population were in the lowest wealth bracket compared to 26.6percent of SC population, 18.3percent of OBCs, 9.7 percent of other castes and 25.3percent of those whose caste is unknown. Skewed distribution of wealth and income co-exist with inequalities in access to opportunities, allocation of resources, availability of social capital for the Indian social structure. Scheduled Castes (SC)/Scheduled Tribes (ST)/Other Backward Classes (OBC) households lag behind in overall socio-economic development because of unequal access to opportunities.

Access to basic amenities: Marginalized caste groups such as SCs, STs and OBCs are not allowed to access the same water sources (e.g., wells or community stand-posts) as dominant caste groups in some rural villages in India (Joshi & Fawcett, 2005). This is based on orthodox social beliefs which creates a barrier to access basic amenities, not only water, but also other necessities like community toilets, decent housing, etc.

Access to healthcare: There is a lack of effective access to health care by marginalised groups in India. This is more pronounced for maternal healthcare – primarily because these groups have been traditionally excluded and discriminated, suffer from high incidences of poverty, deprivations and low levels of education & awareness, which have made their access to public health care tougher. The disparities are visible in Figure 4.6 below.

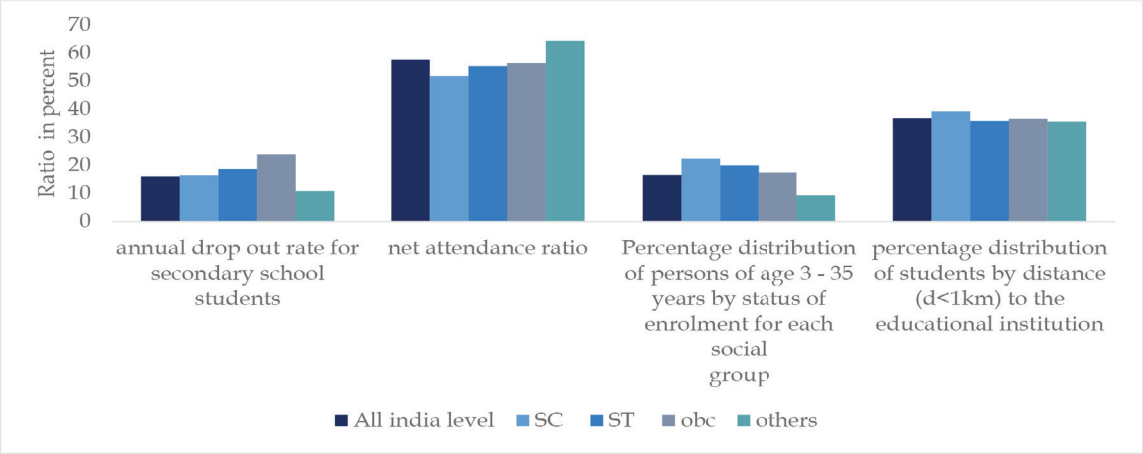
Figure 4.6 Access to Maternal and Child Health Care: By Caste



Source: NFHS4

Access to education: More students belonging to SCs, STs and OBCs drop out of schools in Class 9-10 than all India average indicated greater hardships in accessing and continuing schooling for marginalised students. Boys belonging to the ST categories recorded the highest dropout rate with 25.51 percent followed by girls from the same category which recorded 22.49 percent. Though enrolment in secondary education for students belonging to SC, ST, OBC groups is higher that all India average, actual attendance is lower.

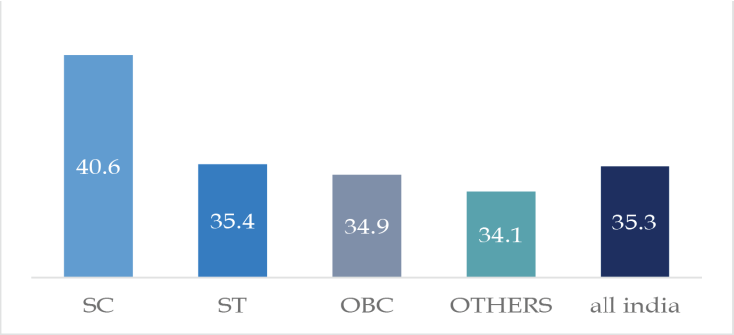
Figure 4.7: Drop Out, Attendance and Enrolment by Caste



Source :UDISE, NSSO

Access to decent work: NSSO data for 2009–10 shows that 92.1 percent of SCs in rural areas were landless or had marginal landholdings (one hectare or less), which points towards preponderance of SCs in casual labour. Such inequalities exist in the labour market and require deeper analysis. WPR for OBCs is lower than the all-India average, indicating lower access to jobs (see Figure 4.8)

Figure 4.8: Percentage WPR (PS+SS) All Ages (2018-19) by social groups

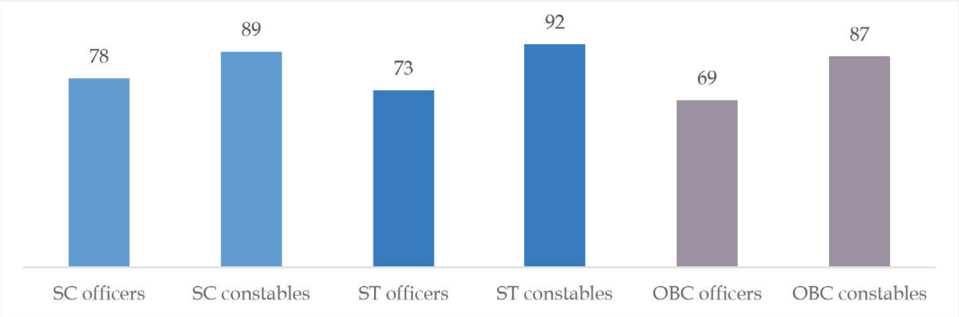


Source: PLFS (2018-19)

Access to Justice: States struggle to also reach the adequate diversity in representation for SC, ST and OBC. In terms of access to fair legal environment, as many as 55 percent of undertrials across the country are either Muslims, Dalits or tribals, who comprise 39 percent of the population —displaying a potential bias in arrests.

Among the states and UTs, the median value (the midpoint of a dataset) for scheduled caste officers against their sanctioned number was 76 percent. In other words, while 15 states and UTs have filled 76 percent or more of the scheduled caste officer quotas, another 21 had done less than 76 percent. For SC constables, the median value was 89 percent, suggesting that states and UTs were more responsive in filling these vacancies at the constabulary level than at the officer level.

Figure 4.9: Diversity in Police (All India Average): Actual to Reserve Ratio (Jan 2020)



Source: India Justice Report (IJR), 2020

Police: Backward Castes, Dalits and tribals constitute almost 67 percent of India's population, but their representation in police forces in the country is only at 51 percent. Tribals, who form 8.6 percent of the population, have 12 percent representation in the police forces, placing them at a comparatively better position. OBCs fare the worst on the representation front. The data shows against a 41 percent share in the population, OBCs constitute only 25 percent of the police forces.[60]

Judges: The representation of OBCs in the subordinate judiciary of 11 states adds up to 12 percent, lower than the community's share of the population. Dalits comprised less than 14 percent of judges in the subordinate judiciary, including district courts, and tribals about 12 percent[61]

4.3. By Gender: Male - Female

Gender inequality is one of the greatest barriers to human development. It is often captured through outcome indicators such as literacy rates, mortality rates, malnutrition, life expectancy, income and others[62].

[60] BPRD
[61] Thakur. P (2018)Data: OBCs just 12percent of lower court judges, The Times of India. Jan 29, 2018. https://timesofindia.indiatimes.com/india/data-obcs-just-12-of-lower-court-judges/articleshow/62687268.cms
[62] In the absence of data , gendered inequalities motivated by outdates social beliefs cannot be measured through data.

Access to Water & Sanitation: India still does not have universal access to safe drinking water and sanitation facilities at household level and this adversely affects women and girls disproportionately. Women and girls suffer indignity and get exposed to safety risks due to the lack of water supply and sanitation facilities within household premises in many parts of the country. There are social barriers to access, for instance, women are the main users of water for domestic purposes (e.g., drinking, bathing, and cooking) in rural areas, but in some locations, they are barred from using public water sources while menstruating (Joshi & Fawcett, 2005). A report revealed that almost 23 percent of girls in India drop out of school on reaching puberty due to a lack of water and sanitation facilities[63]. Equitable access to water for productive and domestic use can empower women and address the root causes of poverty and gender inequality (UN).

Access to decent Housing: Across India, women are discriminated against, with their rights to own, access, use, and control housing and property – a phenomenon caused by a combination of social, political, and legal factors[64]. In India, 66 percent of married men report owning housing on their own, compared to 22 percent of married women[6566] .

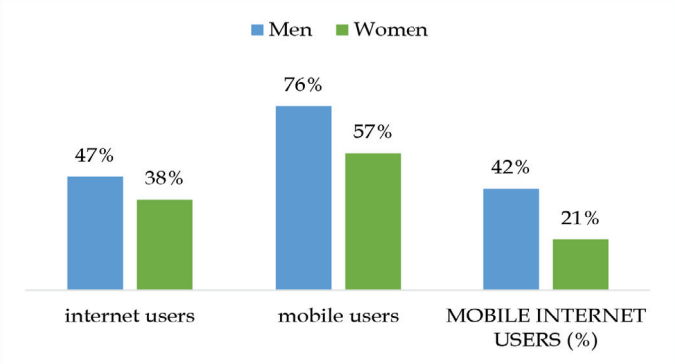
Access to food & nutrition: "Food and nutrition insecurity is a political, economic and environmental issue, but, most importantly, it is a gender justice issue; stark gender inequalities are both a cause and an outcome of unjust food access, consumption and production"[67]. Under the National Food Security Act, (NFSA) 2013, to ensure women empowerment, the eldest woman of the household of age 18 years or above is mandated to be the head of the household for the purpose of issuing of ration cards under the Act. However, this is not enough to mandate actual intake of food and access to balanced, nutritious food by women and girls. Unfair intra-household food allocations play a large role in depriving the same which is also evident in the outcomes. For instance, a quarter of women of reproductive age in India are undernourished, with a body mass index (BMI) of less than 18.5 kg/m (NFHS-4 2015-16)[68].

[63] Verma. R (2018). About 23 percent girls drop out of school on reaching puberty, Down to Earth. January, 15, 2018. https://www.downtoearth.org.in/blog/health/23-girls-drop-out-of-school-on-reaching-puberty-59496
[64] Saxena. S (2020) India's Housing Crisis: A Gender Perspective, Urbanet. October8, 2020. https://www.urbanet.info/indias-housing-crisis-a-gender-perspective/

[66] Gaddis. S , Lahoti. R and Swaminathan. H (2021). Women's legal rights and gender gaps in property ownership https://www.ideasforindia.in/topics/social-identity/women-s-legal-rights-and-gender-gaps-in-property-ownership.html
[67] Gender and Food Security , 2015. ,http://www.wocan.org/sites/default/files/Genderpercent20andpercent20FSpercent20Inpercent20Brief.pdf
[68] The State of Food Security and Nutrition in the World 2020 report

Access to Digital Infrastructure: In 2019-2020, digital connectivity emerged to be more important than ever. Internet and mobile access are the gateway to critical information, services, and opportunities in today's pandemic era. GSMA Mobile Gender Gap report 2020 states that mobile ownership and use provides life-changing benefits to women, their families, communities and the economy. In India, women's awareness of mobile internet increased from 19 percent to 50 percent during 2017-19, but still remains considerably low[69].

Figure 4.10: Access to connectivity – Gender Gap (Percent)



Source: IMRB, GSMA

Access to Education: UDISE report gives Gender Parity Index, which shows ratio of the number of female students enrolled at each level of education to the number of male students. Between 2012-13 and 2019-20, the Gender Parity Index (GPI) at Secondary levels have improved. The report shows that there has been improved access to secondary schooling for girls with GER going up by 9.6 percent to reach 77.8 percent in 2019-20 from 68.2 percent in 2012-13.

Based on the data from a report by the National Commission for Protection of Child Rights, around 40 percent of 15 to 18-year-old-girls (as compared 35percent boys) were out of school and among them almost 65 percent were engaged in household work. Thus, gender roles based on social norms and financial constraints both result in curtailed access to education for girls. The gender gap widens with progressive levels of education owing to greater barriers to schooling that girl face due to social norms and deeply ingrained gender stereotypes correlated with biological factors such as adolescence. This is evident from the highest dropout rates for girls at secondary level at 15.05 as compared to 17.01 for boys (figure 16). NAR is almost equal for both genders, males being marginally higher (57.9) than females (57.3)[70]. State wise disparities in access to education at secondary level is depicted in Appendix 15a and 15b.

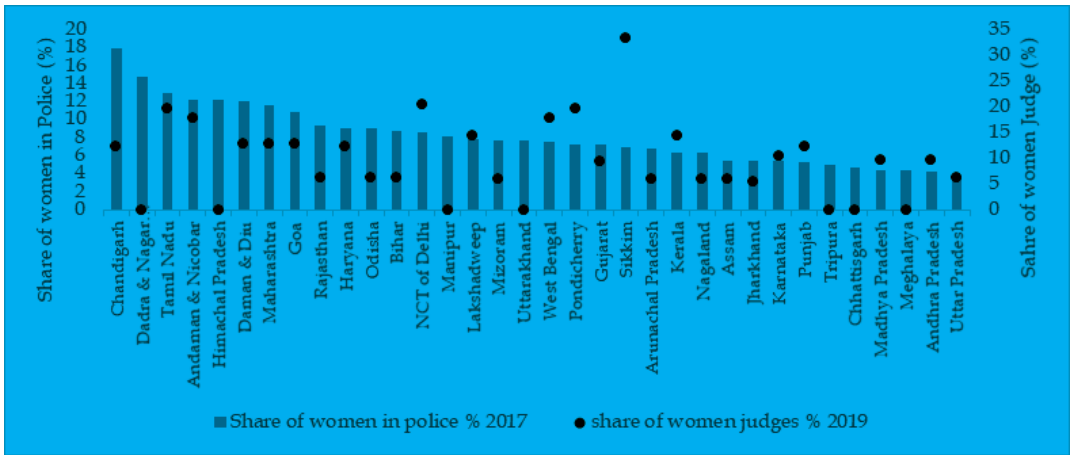
Access to financial security: More than half of all account holders under the Pradhan Mantri Jan Dhan Yojana (PMJDY) are women. Almost 60 percent of the PMJDY accounts in Rajasthan were held by women, while Goa had the lowest share of women accounts (44 percent). Among the UTs, Ladakh reported the highest percentage of women account holders under PMJDY at 57.87 percent, while the lowest is in Daman and Diu (30.83 percent) (See Appendix 16)

[69] GSMA : The Mobile Gender Gap Report , 2020 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/05/GSMA-The-Mobile-Gender-Gap-Report-2020.pdf
[70] NAR – NSS &5th Round, Secondary Dropout rate – UDISE+ 2020

Access to decent work: Data from the Periodic Labour Force Survey (PLFS) 2018-19 indicates that in both rural and urban areas, WPRs for females were considerably lower than WPRs for males, thus women have lower access to decent work. In the rural sector, the Worker Population Ratio (WPR) was 19.0 for females and 52.1 for males. In Urban sector, the ratio is 14.5 for females and 52.7 for males.

Access to justice: Though gender parity in the justice system is a distant goal, among states, overall women representation has improved in 22 states in police, 18 states in prisons and 20 states for subordinate court judges from 2018 to 2019, based on IJR report. Access to equal representation is still constrained through the glass ceiling and visible in the miniscule number of women as supreme court, high court, and subordinate court judges. The poor representation of diversity affirms inequality of opportunity in the Indian justice system.

Figure 4.11 Share of women in Police and Judge (Percent)



Source : IJR, 2020

The disparities across Indian states and UTs and across various castes, gender and region had widespread repercussions during the pandemic. The inequality widened and the vulnerable population were most impacted by the social, economic, political and humanitarian crisis caused by COVID-19 pandemic. Below, we provide a snapshot of the impact of the pandemic on India .

5. Impact of COVID

In the wake of recent pandemic, the discussions on both income and social inequality have gained traction. The economic contractions have resulted in reversing the gains achieved in poverty alleviation. In an 'event study regression' conducted by Ideas for India[71], the report read "the pandemic and the subsequent lockdown caused a 47 percent decline in the average seasonally adjusted per capita real household income in April 2020 relative to February 2020 (42 percent in rural, and 53 percent in urban

[71] The authors employed 'event study regression' to measure the extent of income changes, while controlling for such observed and unobserved household characteristics that do not change in this period but that may affect the ability to withstand the shock ('fixed effects)

areas). While incomes started recovering after the relaxation of the national lockdown restrictions between February- June 2020, after which recovery slowed down significantly till August 2020, and thereafter, recovery stagnated till October 2020. In October 2020, income levels were around 16-18 percent below February 2020 levels, in both rural and urban areas." The decline in income resulted in increasing food insecurity and indebtedness for a significant number of populations.[72]

A report by Oxfam titled "The Inequality of Virus[73]" found that 84 percent of the households suffered a loss in income and 1,70,000 people lost their jobs every hour in April 2020. On the other hand, the wealth of the richest billionaires in India increased by 35 percent. As per Pew Research Center study, the pandemic has driven 32 million Indians out of the middle class, defined as those earning $10 to $20 a day. The estimates from the study stated the number of India's poor — those with incomes of $2 or less a day — increased by 75 million.

While the widening income inequality has far-reaching consequences, the pandemic has further highlighted and heightened the inequalities in accessing various services by the Indian citizens. For instance, personal hygiene and handwashing practices came under scrutiny as millions of India's poorest are deprived of basic amenities. In 2018-19, only 36 percent of the households in India washed hands with water and soap/detergents before meals and 74 percent of the households wash hands after defecation. The implications of these inequalities are also considered to be one of the factors for the transmission of the disease within the country and the impact on vulnerable groups.

India's housing crisis also aggravated during the pandemic because of the forced eviction and home demolition of marginalized and low-income communities[74] in the absence of rental agreements. According to a report published by the Housing and Land Rights Network (HLRN), 20,000 people were evicted from their homes between March- July 2020[75].

Job loss and lack of access to the benefits that comes with formal employment impacted many migrants and daily wage workers, with women being disproportionately affected during pandemic. This exacerbated hunger and poverty. As per the first phase of NFSA (2019-20)[76], 16 states were reported showcasing increase in underweight and severely wasted children under the age 5 as a result of overburdened healthcare systems, disrupted food patterns and income loss caused by pandemic.

The pandemic also revealed major creaks in healthcare systems with a void of limited hospitals, debilitating medical infrastructure and restricted access to healthcare. Further the inward migration of the workers, had added burden on existing health systems in rural areas, as the majority of outpatient departments (OPDs) in primary health centers have been inoperative since the commencement of the lockdowns. In terms of affordability, the expensive RT-PCR test and high price charged for N-95 masks, contactless thermometers, and personal protection equipment (PPE) kit[77] during the pandemic, further added to the miseries of the people, especially vulnerable and low-income groups.

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[72] Ajim Premi Ji Report on State Of Working India 2021 : One year of Covid-19. https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2021/06/SWI2021_Web_25June.pdf

[73] OXFAM: The Inequality Virus. https://webassets.oxfamamerica.org/media/documents/the-inequality-virus-report.pdf?_gl=1*wtueay*_ga*MTI0NDgzNjgyNy4xNjMxNzc2NzY5*_ga_R58YETD6XK*MTYzMTc3Njc2OS4xLjAuMTYzMTc3Njc3Mi4w

[74] Chandran. R (2020). Millions in India face eviction amid coronavirus recovery push, Reuters.August 18, 2020. https://www.reuters.com/article/us-india-landrights-eviction-idUSKCN25E1QY

[75] Pal. S (2020). Covid 19: Close to 20,000 people forcefully evicted from their homes during the lockdown, News Click. August 19, 2020. https://www.newsclick.in/COVID-19-close-22000-people-forcefully-evicted-homespercent20During-lockdown

[76] NFHS- 5 2019-20. State Factsheet Compedium. http://rchiips.org/NFHS/NFHS-5_FCTS/NFHS-5percent20Statepercent20Factsheet-percent20Compendium_Phase-I.pdf

[77] https://www.indiaspend.com/fromduring -treatment-to-medical-gear-patients-paying-more-in-covid-times/

Accessing education was also difficult during the pandemic. A total of 320 million learners in India has been affected and had to transition to e-learning that relies on the availability and accessibility of technology and electricity. In a recent survey[78] by Ministry of Rural Development indicated that only 47 percent of the Indian households received 12 hours of electricity and more than 30 percent of the schools in India operate without electricity. As a result, students from privileged background found it easier to transition to the e-learning methods, while lack of adaptation and awareness made education inaccessible to lot of the children from underprivileged background.

The vulnerability of girls in accessing education was also observed during the pandemic. The inadequate access to the internet and regressive social norms added to the deprivation. According to the Key Indicators of Household Social Consumption on Education in India report[79], based on the 2017-18 NSSO, fewer than 15 percent of rural Indian households have internet access (as opposed to 42 percent urban Indian households). A mere 13 percent of people surveyed (aged above five) in rural areas — just 8.5 percent of females — could use the internet.

While access to basic amenities, health, education and employment impacted various sections of the society differently, the rising incidence of domestic violence intensified the vulnerabilities for women. While crime against women declined by 21 percent[80], the official data of the National Commission for Women (NCW) recorded the domestic violence complaints to increase by 2.5 times[81] since the lockdown began in India.

The pandemic has been an eye opener in highlighting some of the pre-existing inequalities in India that deprived lives and livelihoods of several people during the lockdown, resulting in increasing inequalities.

6. Limitations of the Data and Methodology

- Given the performance of states is also dependent upon the size of the population and area of states and UTs, this year index is limited in providing comparison on how large, medium sized and small states performs.
- The findings from the index and ranking while relevant, are not complimented with a case study showcasing the best practices by the states have in the report.
- Aggregation of data may have aberrations which require qualitative analysis at disaggregated level, for instance in education, average expenditure by students for secondary education is not fully representative of affordability and aggregating this with other indicators in the calculation of sub-index can distort the rankings.
- Equitable access to basic amenities, health, education, financial security, decent work, and safe environment, regardless of social or economic background would be a holistic way to look at equality of opportunities. But due to lack of data availability for social backgrounds (religion, caste, ethnic or social groups) for the indicators taken in the study, the report does not look at the disparities across caste groups for all states and only provides commentary on all-India level.

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[78] Kundu. P (2020). Indian education can't go online – only 8percent of homes with young members have computer with net link, Scroll. in. May 5, 2020.
https://scroll.in/article/960939/indian-education-cant-go-online-only-8-of-homes-with-school-children-have-computer-with-net-link
[79] http://mospi.nic.in/sites/default/files/NSS75250H/Chapter-5.pdf
[80] Crime against women in Indian cities decreased by 21percent in 2020: NCRB, September 15, 2021. https://www.wionews.com/india-news/crime-against-women-in-indian-cities-decreased-by-21-in-2020-ncrb-413242
[81] http://www.ncw.nic.in/

- Geographical Information System (GIS) strengthens the capability to bring together spatial and non-spatial data to further analyze for actionable policy decisions. GIS technology to map various public services is limited in India. Recently, governments are putting in efforts towards the collection of GIS data to understand the management, response and recovery of COVID-19, but the data available to public is still limited. Mapping access to health care, education and other critical infrastructure can uncover some of the reasons behind the regional and gender disparities and their impact on growth.
- There is an acute data gap in the country for gender equality in several sectors, therefore, inequality across genders has been seen only for the indicators where the data is available.
- The National Digital Health Mission (NDHM) aims to develop the backbone necessary to support the integrated digital health infrastructure of the country. But the parameters related to access to digital tools and technologies is not available at state level, therefore, the report aims at overall commentary for the pillar but has not included any indicator in the index.
- For digital inequality, social and economic backwardness is exacerbated due to information poverty, lack of infrastructure, and lack of digital literacy. National Digital Literacy Mission has barely touched 1.67 percent of the population and state level data is not sufficient in order to draw significant conclusion in term of inequality[82]. This can be looked at as an important separate pillar but due to lack of data related to access indicators for all states, we have refrained to use the same.
- Ideally, political representation is an important set of opportunities, but it has not been considered for now due to lack of data which fit the definition of 'access'.
- Aim of the report was to take the latest data possible, but due to limitations on holistic data, for example NFHS 5 has data only for 22 states/UTs and thus, in order to complete the index for all states and make it standardized across all pillars, NFHS 4 data was taken. Same applies for other data sets such as NSS 71st round and 75th round for health and education.
- Definition of Access does not look at "Demand Side" such as "Acceptability" dimension which depends on perception of the people and usability of the services by the citizens. This dimension is usually captured qualitatively or through a dedicated survey, which was not in current scope.

7. Conclusions and Way Forward

The Access to (In)Equalities Index 2021 ranks all states and UTs of India on the various parameters that measures opportunities (un)available to the households and individuals. This includes basic amenities, education, healthcare services, socio-economic security, and Justice. The composite index that categorizes states into three categories including front runners, achievers and aspirant's, measures the states performance across the five pillars. While most of the front runner's performance has been decent across the pillars, the aspirants and the achievers lag behind. Highest inequality persists in basic amenities followed by Justice, healthcare. and socio-economic security. Least variations exist in access to secondary school education among states and UTs.

Therefore, the rankings provide motivation to aspirants and achievers to learn from the front runners such that the relevant policies and programs can be executed efficiently by the central and states government and relevant authorities to address the issue of inequalities. This is especially important, given that the pandemic has exacerbated the economic and social inequalities.

[82] Srivastava. S (2019). Inequality of another kind, The Hindu. September 24, 2019. https://www.thehindu.com/opinion/op-ed/inequality-of-another-kind/article29492512.ece

The findings from the index emphasize on the need for targeted policies and actions plans by the state and central government and relevant authorities. This will help in addressing inequalities and creating an equitable environment for all the section of the people in India. Given that the pandemic has risked many lives and livelihoods of citizens in India, the immediate task should be to secure the livelihoods of the most deprived sections of our societies since the future of the entire global community is linked to the well-being of the person at the end of the line.

For competition and cooperation to work in tandem, the AEI must be a continuous exercise allowing for longitudinal comparison of states and assess their performance relative to others over a period of time. In order to keep the index relevant, we plan to refine our indicators and methodology to assess the yearly progress of the states and UTs.

Further to capture the progress, a dashboard can be created to present both disaggregated and aggregated data for interpretation and analysis by the large group of research community. In addition, the best practices of the states in the form of case studies will be presented in the future reports, which will act as a useful resource for the underperforming states to cross-learn jointly. The recent pandemic has increased our reliance on digital means, the future work on index will also try to capture indicators that will assess the role of digitization across all the indicators.

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Appendices

Appendix 1 : Synopsis of major literature used

S.no.	Name of the Authors	Paper	Literature review / Extract/ Interpretation
1.	Sen A.	Sen, A.K. (1979a, 1979b, 1985a, 1985b). "Equality of What?". In Sterling M. McMurrin (ed.), The Tanner Lectures on Human Value, pp: 195-220. Sen, A.K. (1987, 1989, 1992, 1996, 1999, 2004, 2009). The Standard of Living: The Tanner Lectures. Cambridge: Cambridge University Press. "Development as Capability Expansion". Journal of Development Planning, 17, pp. 41-58. Inequality re-examined.	An evaluative framework which can be used to assess individual well-being. Instead of focusing exclusively on economic means or subjective well-being, the capability approach focuses on people's capabilities to live the kind of life they have reason to value. Capabilities are described as freedom or real opportunities one has regarding the life one may lead. It enables us to look at opportunities which relate to the "process" or "means" rather than "outcome" or "end".
2.	John Rawls	A Theory of Justice (Cambridge, MA: Harvard University Press, 1971)	According to Rawls, no inequalities in the distribution of primary social goods should be tolerated, so long as inequalities of wealth and income will be to everyone's advantage, and specifically to the advantage of those who will be worst off. Fair equality of opportunity requires that citizens with the same talents and willingness to use them have the same educational and economic opportunities regardless of whether they were born rich or poor.
3.	John E. Roemer Inequality goes beyond income and affects opportunities	Theories of Distributive Justice	Beginning from the recent theories of Arneson and G. A. Cohen, he constructs a theory of equality of opportunity.
4.	Genicot and Ray, 2016	Aspirations and Inequality, NBER Working Paper No. 19976	"While social outcomes affect aspirations, those very aspirations influence — via the aggregation of individual decisions — the overall development of a society. As a result, aspirations and income (and the distribution of income) evolve together." In equilibrium, the overall income distribution influences individual aspirations, which in turn shape the distribution via individual choices.
5.	Cojocaru 2019	"Inequality of Access to Opportunities and Socio-economic Mobility: Evidence from the Life in Transition Survey", Policy Research Working Paper 8725	Paper examines the link between beliefs about the importance of personal connections for getting access to opportunities, such as a good job or university education, and expectations of future socioeconomic mobility. Perceptions of unequal access to opportunities are also linked with stronger redistributive preferences. Finally, there is some evidence that unequal access to opportunities is associated not only with lower intragenerational mobility, but also with lower intergenerational mobility.
6.	Chetty, R., Hendren, N., and Katz, L.E. (2016)	The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment." American Economic Review 106 (4): 855–90	The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment." - find robust evidence that children who moved to lower-poverty areas when they were young (below age 13) are more likely to attend college and have substantially higher incomes as adults.
7.	Fields and Fei (1978), Atkinson (1970), Deaton (2013,2021), Milanovic (2016), Niño-Zarazña, Roope and Tarp, (2017), Goldin and Muggah (2020), Chateauneuf and Moyes (2005)	Multiple	Developed an approach to inequality comparisons which differs from the conventional ones (Gini and Lorenz)– looking at what comprises a "good index" of inequality.
8.	Barros et al. (2009, 2011)	Molinas, J., R. Paes de Barro, J. Saavedra and M. Giugale. 2012. "Do Our Children Have a Chance?" The 2010 Human Opportunity Report for Latin America and the Caribbean. Washington, DC: World Bank.	The HOI was proposed by Paes de Barros et al. (2008) and is an adaptation of the welfare function suggested by Amartya Sen (1976). In particular, this index takes into account the average coverage of a certain service and the inequality of its distribution. It follows the same logic as GDP per capita and inequality indicators in Sen's welfare function.

9.	Dworkin, R. (1981a,b)	"What is Equality? Part 1: Equality of Welfare, Part 2: Equality of Resources" Philosophy and Public Affairs,	Two general theories of distributional equality - first (which I shall call equality of welfare) holds that a distributional scheme treats people as equals when it distributes or transfers re-sources among them until no further transfer would leave them more equal in welfare. The second (equality of resources) holds that it treats them as equals when it distributes or transfers so that no further transfer would leave their shares of the total resources more equal.
10.	Francisco H. G. Ferreira World Bank and IZA Vito Peragine	Equality of Opportunity: Theory and Evidence	Equality of opportunity is now the prevailing conception of social justice in contemporary western societies. Inequality of opportunity has been analyzed in different spheres of human life and for different domains of public policy, ranging from income distribution and income taxation; to health and health care; educational achievement; and anti-poverty policy. Altogether, the inequality of observed opportunities is responsible for a very substantial proportion of total outcome inequality in Brazil
11.	Arneson	EQUALITY AND EQUAL OPPORTUNITY FOR WELFARE (1988)	The claim that "we are responsible for our preferences" is ambiguous. It could mean that our preferences have developed to their present state due to factors that lay entirely within our control. An opportunity is a chance of getting a good if one seeks it. For equal opportunity for welfare to obtain among a number of persons, each must face an array of options that is equivalent to every other person's in terms of the prospects for preference satisfaction it offer. Equal opportunity for welfare obtains when all persons face effectively equivalent arrays of options.
12.	Gustavo A. Marrero Juan G. Rodríguez	Inequality of opportunity and growth	Income inequality is actually a composite measure of at least two different sorts of inequality: inequality of opportunity (IO) and inequality of returns to effort (IE). IO can reduce growth as it favors human capital accumulation by individuals with better social origins or circumstance. They find robust support for a negative relationship between inequality of opportunity opportunities.
13.	Nussbaum, M. (2011).	Creating capabilities: the human development approach. Cambridge, Massachusetts; London, England: Harvard University Press, 2011.	Nussbaum's capabilities approach is centered around the notion of individual human dignity. She defends these capabilities as being the moral entitlements of every human being on earth. She advocates that all people all over the world should be entitled, as a matter of justice, to threshold levels of all the ten capabilities; but apart from mentioning that it is the governments' duties to guarantee these entitlements. The paper also sees government intervention in provision of basic capabilities in order achieve justice.
14.	R Penchansky, J W Thomas	Penchansky R, Thomas JW. The concept of access: definition and relationship to consumer satisfaction. Med Care. 1981 Feb;19(2):127-40. doi: 10.1097/00005650-198102000-00001. PMID: 7206846.	Access is presented here as a general concept that summarizes a set of more specific dimensions describing the fit between the patient and the health care system. The specific dimensions are availability, accessibility, accommodation, affordability and acceptability.
15.	Levesque, J. F., Harris, M. F., & Russell, G. (2013)	Levesque, J. F., Harris, M. F., & Russell, G. (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and populations. International journal for equity in health, 12, 18. https://doi.org/10.1186/1475-9276-12-18	Conceptualize five dimensions of accessibility: 1) Approachability; 2) Acceptability; 3) Availability and accommodation; 4) Affordability; 5) Appropriateness

Appendix 2 List of indicators

S.no.	Category	Access Dimension	Indicator	Unit	Definition	Year	Source
Access to Basic Amenities							
1.	Drinking Water	Availability & affordability	Piped Water Supply as principal sources of drinking water	percent	Percentage of households with piped water connection to one or more taps either to the dwelling units or the yard/plot within the housing premises as principal source of drinking water.	2018	NSS survey reports
2.		Approachability	Distance to the principal source of drinking water of the household	percent	Percentage of households where principal source of water for the household is available within their dwelling units or housing premises.	2018	NSS survey reports
3.	Sanitation	Availability	Access to Latrines	percent	Percentage of Households that have any form of access to latrine whether that be for exclusive or common or public use.	2018	NSS survey reports
4.		Appropriateness	Access to Water for use in toilets	percent	Percentage of households with the availability of water without impurities like mud, sand or ash in the latrines.	2018	NSS survey reports
5.	Housing	Availability	Pucca houses	percent	Percentage of households living in houses with type of structure of dwelling unit as Pucca House. Pucca housing is a structure of walls and roofs made of pucca materials such as cement, concrete, oven burnt bricks, hollow cement ash bricks, stone, stone blocks, jack boards (cement plastered reeds), iron, zinc or other metal sheets, timber, tiles, slate, corrugated iron, asbestos cement sheet, veneer, plywood, artificial wood of synthetic material and poly vinyl chloride (PVC) material."	2018	NSS survey reports
6.		Appropriateness	Access to good condition houses	percent	Percentage of households living in houses with good condition.	2018	NSS survey reports
7.	Clean Energy	Availability & Appropriateness	Access to clean fuel	percent	Percentage of households with clean cooking fuel - LPG connection.	2018	NSS survey reports
8.	Nutrition	Availability & Affordability	Access to food through public distribution - NFSA	percent	Percentage of beneficiaries covered under the National Food Security Act, 2013.	2019	SDG Report

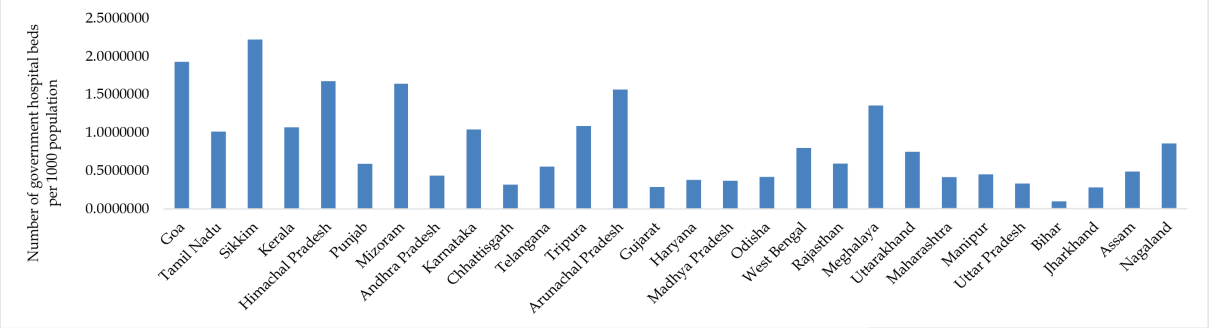
S.no.	Category	Access Dimension	Indicator	Unit	Definition	Year	Source
9.	Digital Access	Availability	Internet users	percent	Any individual who has accessed internet in last 3 months using any device.	2019	IMRB
10.		Availability	Mobile users	percent	Any individual who is the main user of at least one mobile phone.	2019	IMRB
Access to Healthcare							
11.	Affordable healthcare	Affordability	Reproductive health expenditure	Rs	1/Average out-of-pocket expenditure per delivery in a public health facility (Rs.)	2015-16	NFHS 4
12.		Affordability	Medical Expenditure by households (Rural)	Rs	1/Average medical expenditure (Rs.) incurred for treatment during stay at public hospital per case of hospitalization (excluding hospitalization for childbirth) for Rural households	2019-20	MHFW report
13.		Affordability	Medical Expenditure by households (Urban)	Rs	1/Average medical expenditure (Rs.) incurred for treatment during stay at public hospital per case of hospitalization (excluding hospitalization for childbirth) for Urban households	2019-20	MHFW report
14.		Affordability	Access to Health Insurance	percent	Households with any usual member covered by a health scheme or health insurance.	2015-16	NFHS 4
15.	Infrastructure	Availability	Number of government hospital beds (including CHCs)	Number per 1000 population	Number of government hospital beds (including CHCs).	2020	Centre for Disease Dynamics, economics & policy
16.		Availability	Population covered by subcentres	Number	1/Average rural population covered by subcentre.	2020	Rural Health Statistics
17.		Approachability	Area covered by subcentres	1/Kms	1/Average Radial Distance [Kms] covered by a subcentre.	2019-20	Rural Health Statistics
18.		Appropriateness	Public Expenditure	Rs per 1000 population	Public Expenditure in Health by States & Union Territories (Rs. in 000)	2018-19	MHFW report
19.		Availability	Number of government hospitals	Number per 1000 population	Number of public health facilities.	2021	MHFW records

S.no.	Category	Access Dimension	Indicator	Unit	Definition	Year	Source
20.	Reproductive healthcare and childcare	Appropriateness	Post-natal care	percent	Mothers who received postnatal care from a doctor/nurse /LHV / ANM /midwife /other health personnel within 2 days of delivery (percent)	2015-16	NFHS 4
21.		Appropriateness	Institutional Births	percent	Institutional births (percent)	2015-16	NFHS 4
22.		Appropriateness	Child immunisation coverage	percent	Percentage of children fully immunized.	2019-20	MHFW report
23.		Appropriateness	Antenatal care	percent	Mothers who had at least 4 antenatal care visits (percent)	2015-16	NFHS 4
24.	Digital health infrastructure	Availability	Tele-consultation funds	Rs per 1000 population	funds approved under NHM for Tele consultation at Ayushman Bharat Health and Wellness Centre under NHM for teleconsultation	2021	MHFW records
Access to Education							
25.	Vocational Training	Appropriateness	Vocational Training Courses	percent	Percentage of schools with vocational course training under NSQF at secondary and higher secondary level	2019	UDISE
26.	Access to School	Appropriateness	Average annual drop out rate in secondary level	percent	percentage of students who drop out from the education cycle at the give year	2019	UDISE
27.		Availability	Net Enrolment Rate	percent	percentage of students of the age enrolled in secondary education.	2019	UDISE
28.		Appropriateness	Net Attendance Ratio in Secondary Level	Ratio	ratio of the number of persons in the official age-group attending a particular level of education to the total number persons in the age-group.	2017	NSS Report - 75th
29.		Approachability	Secondary schools within a 2km distance	Number	Per thousand distribution of households from schools having secondary education	2014	NSS
30.		Affordability	Household Expenditure	Number per student	Average expenditure per student in secondary education that a household pays according to the current curriculum.	2017	NSSO
31.		Appropriateness	Public Expenditure	percent	Amount spent by the government on secondary education divided by the age wise population for secondary education (13-15 years)	2018	Ministry of Education
32.		Appropriateness	Schools with Girls Toilets	percent	The percentage of schools that are equipped with girls toilets	2018	UDISE

S.no.	Category	Access Dimension	Indicator	Unit	Definition	Year	Source
33.	Teaching Staff	Appropriateness	Pupil- Teacher Ratio at secondary level	Ratio	Number of students in a given state divided by the number of teachers available for the same in the given state	2019	UDISE
34.	Digital Infrastructure	Availability	computer facility	percent	Percentage of schools with functional computer facility	2019	UDISE
35.		Appropriateness	Internet facility	percent	Percentage of schools with internet available.	2019	UDISE
Access to Socio-Economic Security							
36.	Financial Security	Availability	Active bank account	percent	Percentage of households with one member having an active bank account	2021	Finance Ministry
37.		Approachability	Functioning branches of Commercial Banks	per 1,00,000 population	Number of functioning branches of commercial banks per 1,00,000 population. This has been computed after dividing the number of functioning offices of commercial banks with mid-year projected total population in 2020	2020	SDG Report
38.		Approachability	Number of ATMs	per 1,00,000 population	Automated Teller Machines (ATMs) per 1,00,000 population. Computed after dividing total number of ATMs including SCBs and WLAs by mid-year projected total population	2020	SDG Report
39.	Economic Security	Availability	Access to work	percent	Worker Population Ratio - For Persons Aged 15 Years & Above for year 2018- 19 (WPR is defined as the percentage of employed persons in the population.)	2018-19	Men and Women Report
40.		Availability		percent	Persons provided employment as a percentage of persons who demanded employment under MNREGA	2019	SDG Report
41.		Availability	Access to ESI when employed	percent	Number of employees covered under the scheme divided by the total workforce of the population.	2020	ESI Annual Report
42.		Availability	Access to social security when employed	percent	Percentage of regular wage/salaried employees in usual status in non-agricultural sector who are covered under any social security benefits such as pension etc.	2018	Periodic Labour Force Survey
43.	Social Security	Availability	Access to public assistance to disabled/ divyang	percent	Percentage of person with disability who received any assistance	2021	MOSPI - Persons with Disabilities (Divyangjan)
							in India - A Statistical Profile : 2021
44.		Availability	Access to Life Insurance	ratio	Number of lives covered under Life Insurance	2016	IRDAI

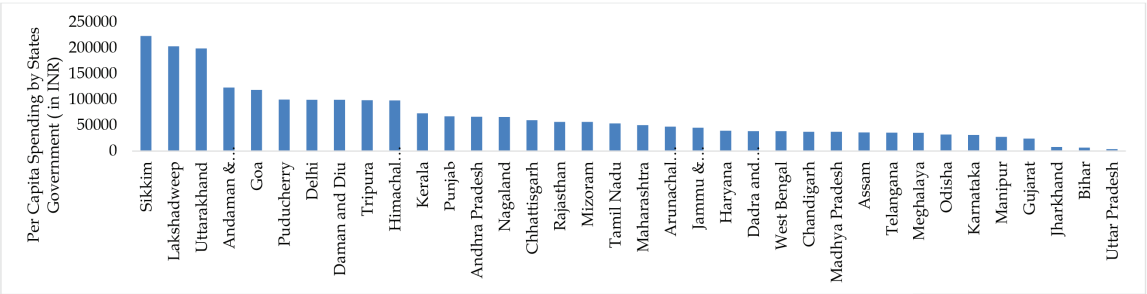
S.no.	Category	Access Dimension	Indicator	Unit	Definition	Year	Source
Access to Justice							
45.	Representation of women	Availability, Approachability, Appropriateness	Share of women judges	percent	Share of women judges	2020	India Justice report
46.		Availability, Approachability, Appropriateness	Share of women in police	percent	Share of women in police	2020	India Justice report
47.	Timely Justice	Availability	Proportion of pending cases (0-1 years)	1/x percent	Total civil and criminal cases that have been pending from 0-1 years as a percentage of total cases	2021	National Judicial Data grid
48.		Availability	Police case pendency	%	Cases pending Investigation at the end of year divided by total cases for investigation	2019	Crime in India Report
49.	Human Resources	Availability	Population per civil police persons	1/x number	Population per civil police persons	2020	India Justice report
50.		Availability	High court judge vacancy	1/x percent	High court judge vacancy	2020	India Justice report
51.		Availability	Inmates per officer (persons, Dec 2019)	1/x percent	Inmates per officer (persons, Dec 2019)	2020	India Justice report
52.		Availability	Vacancy of state police forces	1/x percent	Percentage of vacancies in state police forces upon the actual force size	2020	PRS
53.		Availability	Population per high court judge	1/x number	Population per high court judge	2020	India justice report 2020
54.	Physical Infrastructure	Availability	Courthall Shortfall	1/x percent	Courthall shortfall	2020	India justice report
55.		Availability	Prison occupancy	1/x percent	Prison occupancy	2020	India justice report
56.		Availability, approachability	Total Police Stations	number per 1000 population	Total number of sanctioned police stations	2020	Data on police organisations report
57.	Legal Aid	Approachability	Average villages per legal service clinic	ratio	1/Average villages per legal service clinic	2020	India justice report
58.	Digital Infrastructure	Availability, Approachability, Appropriateness	Services provided by state's citizen portals	ratio (per population)	services provided by state's citizen portals	2020	India Justice report

Appendix 3 : Number of Hospital Beds (Government) per 1000 population



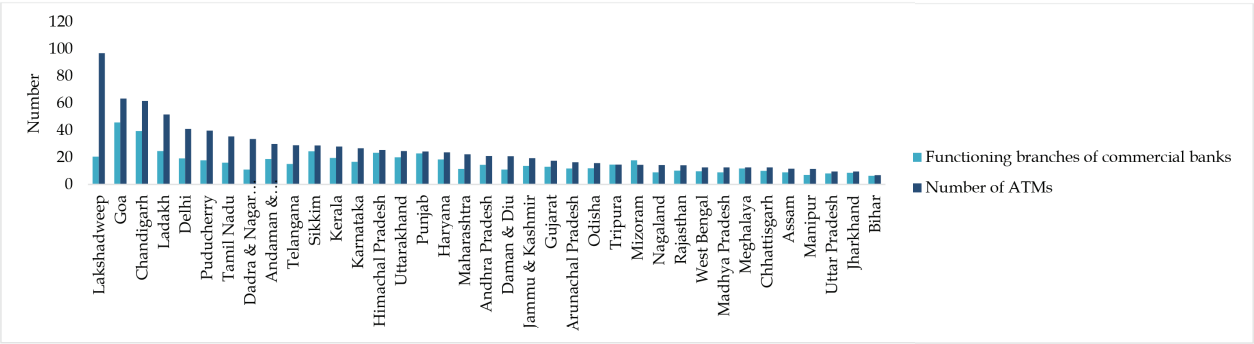
Source: MHFW, 2021

Appendix 4 : Per capita spending by the state governments on secondary education



Source : Analysis of Budgeted Expenditure On Education 2016-17 to 2018-19, Ministry of Education, GoI

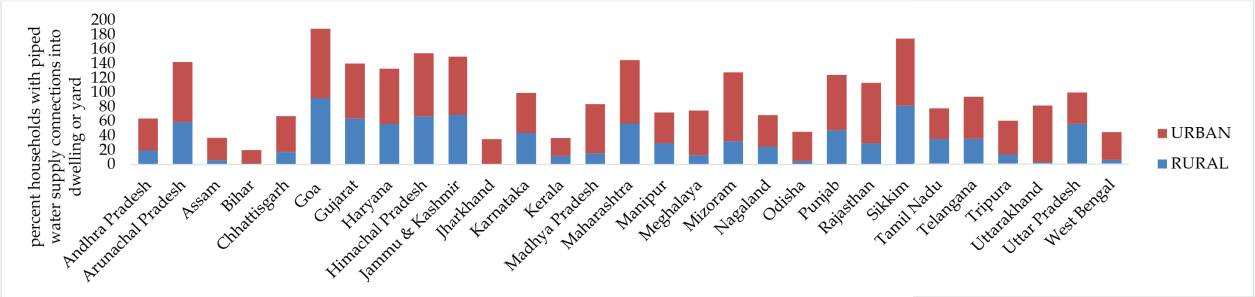
Appendix 5: Access to financial services



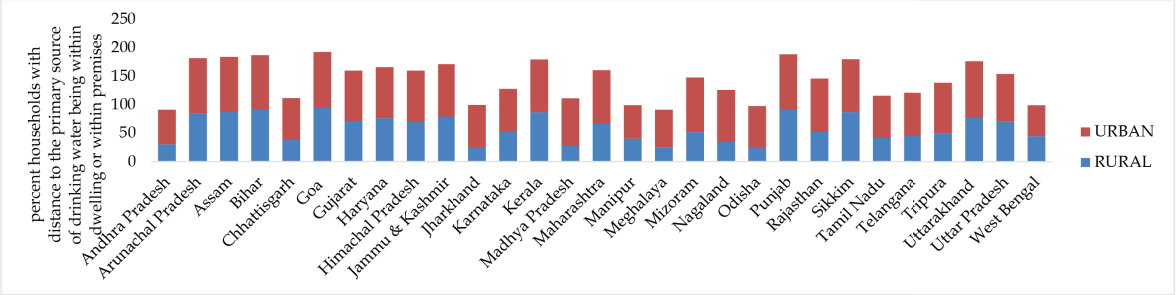
Source : RBI

Appendix 6 Access to Drinking Water

6a) percent Households with Piped Water Supply Connections into Dwelling or Yard



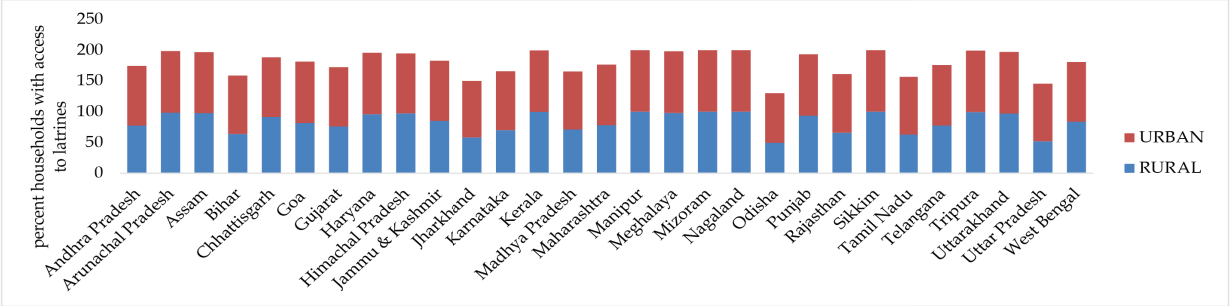
6b.) percent Households with Distance to Primary Source of Drinking Water being within Dwelling Or within Premises



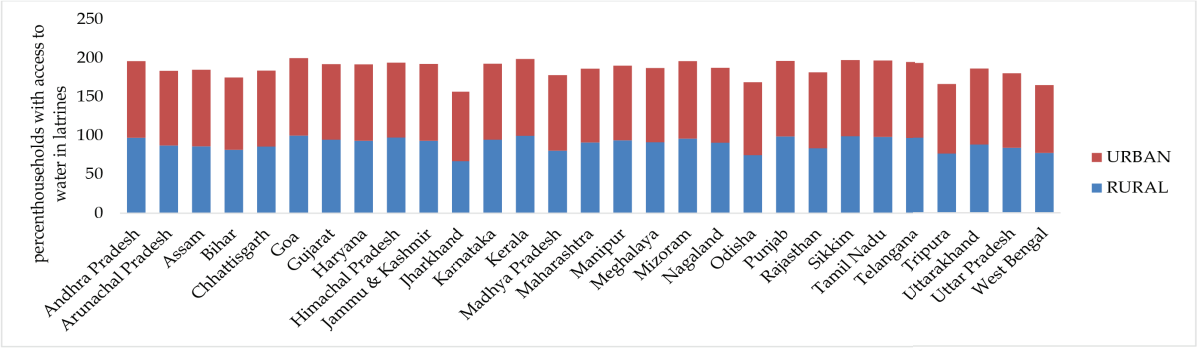
Source : NSS REPORT NO.584 Drinking Water, Sanitation, Hygiene And Housing Conditions

Appendix 7 : Access to Sanitation

7 a) percent Households with Access to Latrines



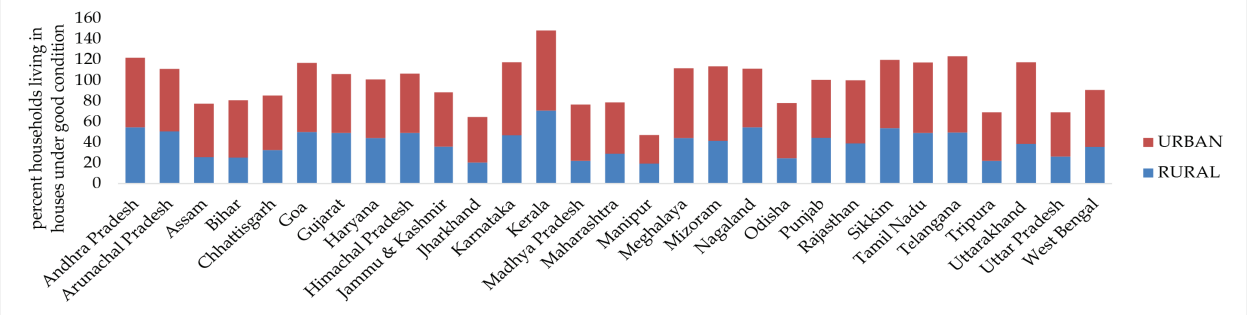
7 b) percent Households with Access to Water in Latrines



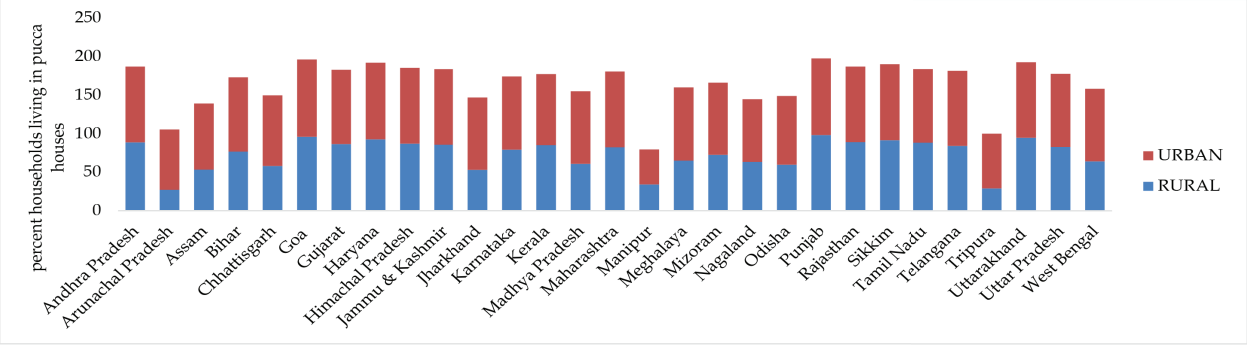
Source : NSS REPORT NO.584 Drinking Water, Sanitation, Hygiene And Housing Conditions

Appendix 8 : Access to Housing

8a) percent Households living in Houses under Good Condition

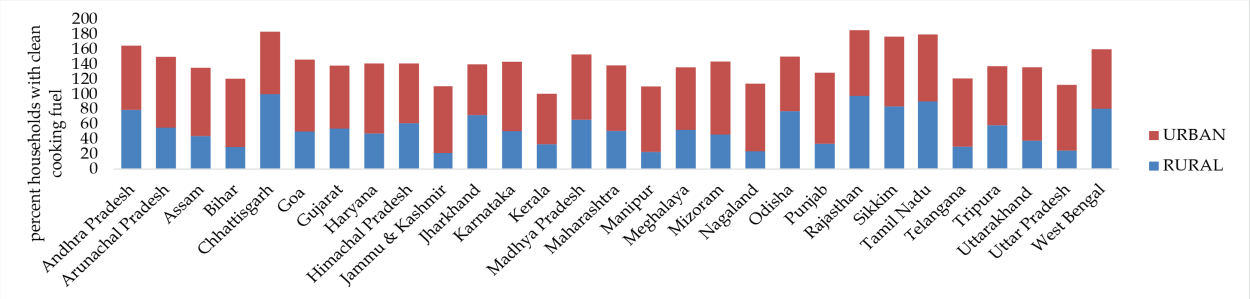


8b) percent Households living in Pucca Houses



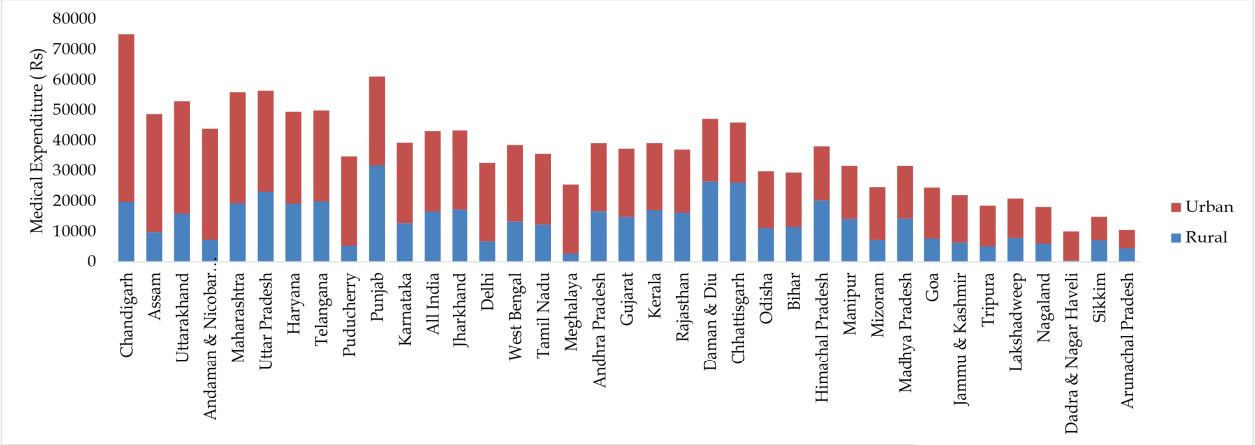
Source : NSS REPORT NO.584 Drinking Water, Sanitation, Hygiene And Housing Condition

Appendix 9: Access to Clean Energy



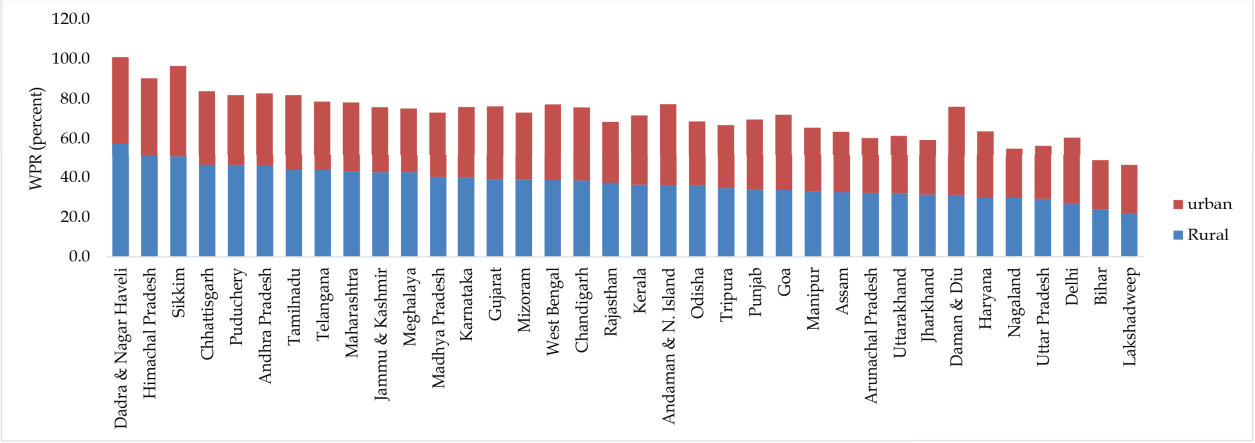
Source : NSS REPORT NO.584 Drinking Water, Sanitation, Hygiene And Housing Conditions

Appendix 10 : Average medical expenses (Rs.) during hospitalization in all types of hospital



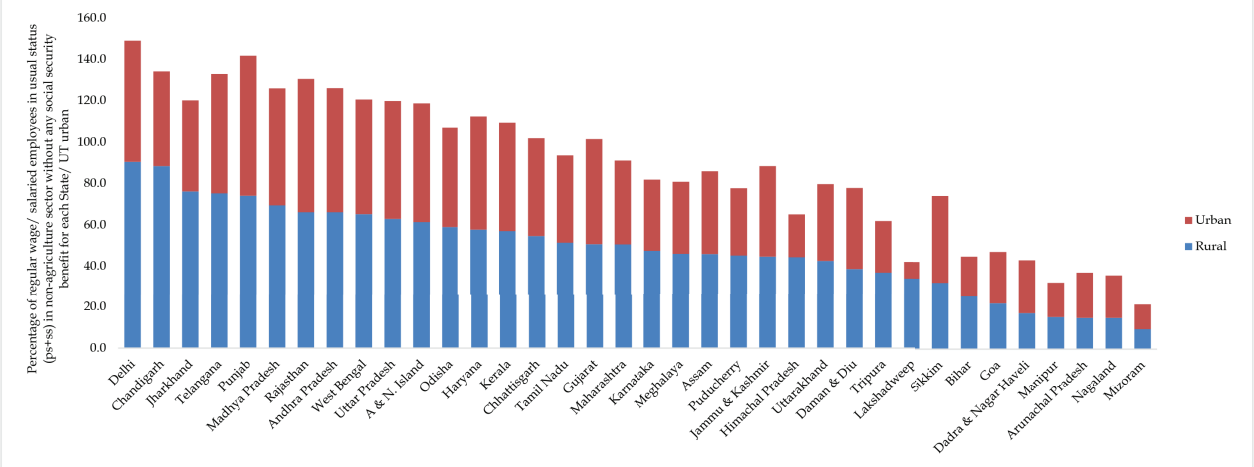
Source: NSS 75th Round Report

Appendix 11: Worker Population Ratio (WPR) (in percent) according to usual status (ps+ss) for each State/UT age group:all ages (0+)



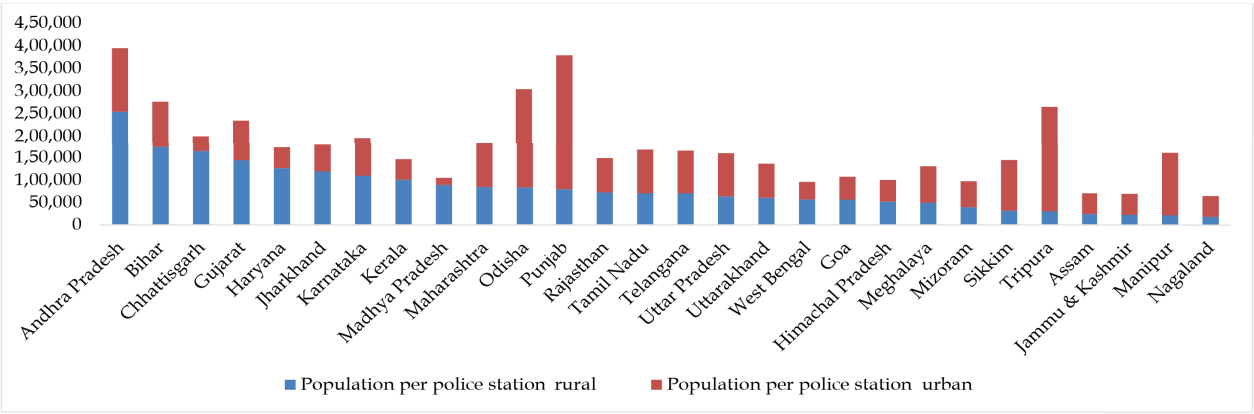
Source: PLFS Annual report 2018-19

Appendix 12 : Percentage of regular wage/ salaried employees in usual status (ps+ss) in non-agriculture sector without any social security benefit for each State/ UT urban



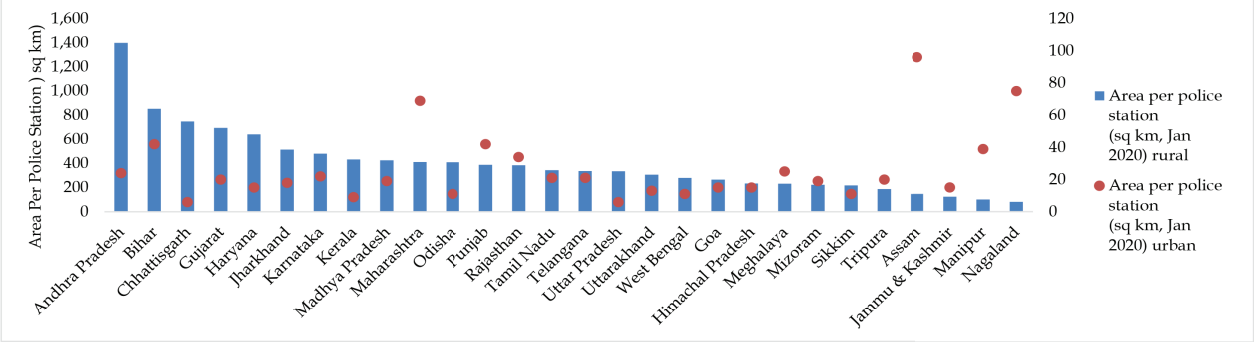
Source: PLFS Annual report 2018-19

Appendix 13: Population Per Police Station



Source : India Justice Report(IJR), 2020

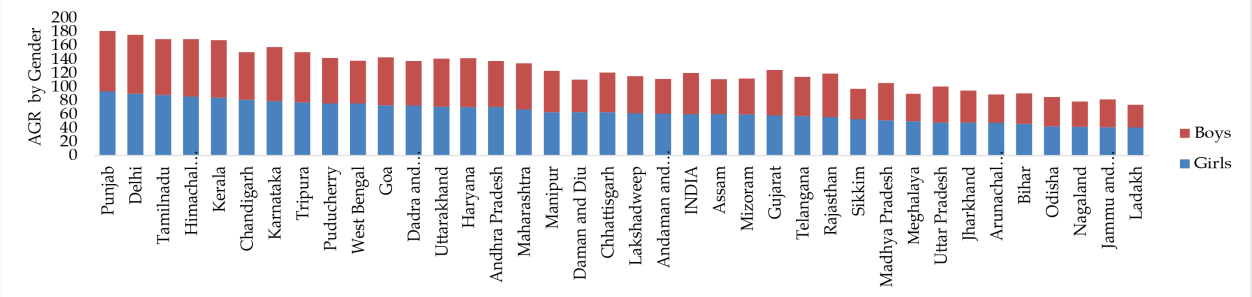
Appendix 14: Area Per Police Station



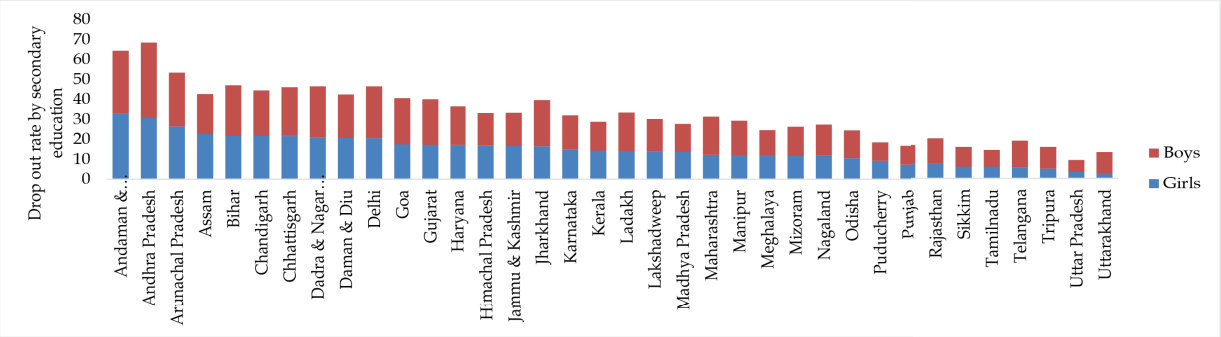
Source: IJR 2020 report, Tata trusts

Appendix 15: Access to education – gender gap

15 a) Adjusted Net Enrolment Ratio

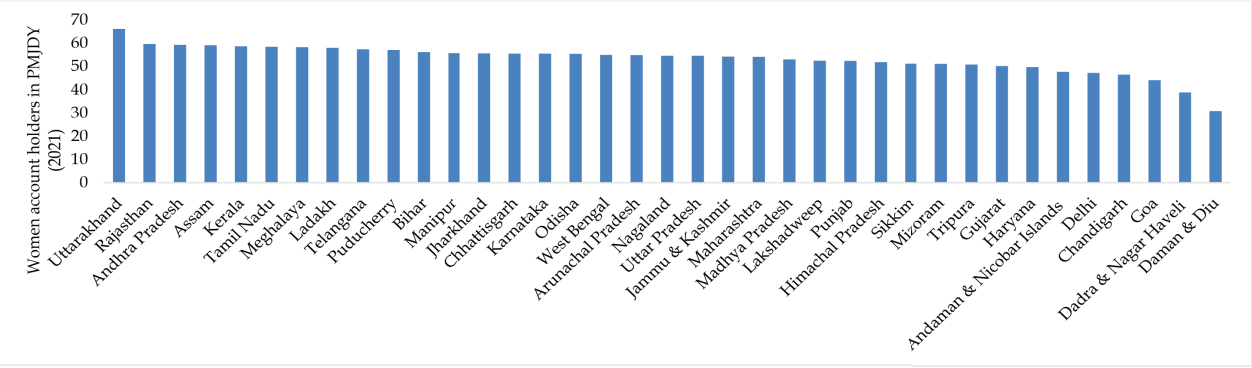


b) Drop Out Rates



Source : UDISE

Appendix 16 : Access to financial security for women : Number of Women account holders in PMJDY (2021)



Source :UDISE