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MULTIDIMENSIONAL INEQUALITY INDEX AMONG INDIAN WOMEN

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Abstract

Inequality is typically assessed using a single dimension measured in monetary values such as income or wages. As many women in developing countries lack access to monetary resources, various indicators must be used to comprehend inequality among women. Since women are the cornerstone of any household and are solely responsible for raising their children and inequality perpetuates itself across generations, it is crucial to study how one woman is unequal compared to another. In this study, we utilized data from NFHS 4 (2015-16) and NFHS 5 (2019-21) to examine the trend of inequality over time, taking into account covariates such as age, educational attainment of partner/husband at the individual level, and caste and religion of the women at the household level. We also investigated regional and state-level inequality. The findings suggest that although there was an overall decrease in inequality from 2015-16 to 2019-21, several groups of women continue to face significant inequality.

Keywords: *Inequality, Multidimensional inequality, Health, Education, Domestic Violence*

JEL Codes: *D63, I14, I24, J1, J12*

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INTRODUCTION

Inequality refers to the phenomenon of an unequal and/or unjust distribution of resources and opportunities among members of a given society. The term "inequality" may mean different things to different people and in different contexts. Moreover, inequality encompasses distinct yet overlapping economic, social, and spatial dimensions. The measurements and impacts of inequality go far beyond income and purchasing power (Koh, 2020). Inequality has two aspects: inequality of opportunities and inequality of outcomes. According to the first, differences exist between inequality resulting from preferences and choices and inequality resulting from external factors beyond the control of an individual. This affects a person's life expectancy and access to basic services such as healthcare, education, water, and sanitation. The second theory contends that people learn and internalize these differences in attitudes, preferences, and choices during their socialization. Differences in outcomes cannot be solely attributed to differences in opportunities if gender has different attitudes, preferences, and choices. Since opportunities and outcomes, both refer to the same phenomenon, it is challenging to measure them separately in practice (World Bank, 2012).

Economic resources are unable to fully capture a number of well-being-related dimensions that may be specifically connected to one or the other gender. Consumption, wealth, and income are imprecise indicators of quality of life because they do not precisely represents what people can accomplish with these resources. It follows that there are several factors besides material resources, that affect quality of life. The fundamental components of well-being include health, nutrition, education, social relationships, empowerment, and many others (Sengupta, 2016).

Women are often subject to discrimination, prejudice, and lack of access to opportunities, resources, and services compared to men. Inequality among women can manifest in many forms, including

economic, social, and political. For example, in developing countries women might not have access to monetary resources, but they may also face barriers to accessing healthcare, education, and other public goods provided by the state. These goods have a non-monetized value that is crucial to women's well-being and empowerment. Inequality in access to these goods can have far-reaching consequences for women's health, education, and economic opportunities. Moreover, inequality can also perpetuate itself across generations. For instance, if women are not provided with equal opportunities in education and healthcare, they may grow up to be less economically and socially empowered, perpetuating a cycle of inequality.

Individual well-being is a multifaceted concept and material standards of living are just a few of the many facets of life that women are concerned about, there is no perfect correlation between these non-monetary dimensions and income, nor are they freely tradable (Stiglitz, 2009). Since traditional measures of inequality that focus solely on single dimensions may not capture the full extent of inequality among women, particularly in developing countries. Understanding the multidimensional nature of inequality among women is, therefore, essential for creating effective policies and programs that address disparities and promote women's empowerment.

A methodical approach to conceptualizing and quantifying the inequalities is offered by the Multidimensional Inequality Framework (MIF). It is theoretically based on Amartya Sen's capability approach, which directs us to consider what facets of life are crucial to ensure that individuals are capable of leading lives they have good reason to value and would choose for themselves. This framework can be applied to the study of inequality among women to provide insight into how a woman may experience discrimination in one dimension but not in another.

To study inequality among women, it is important to understand "women's autonomy". It is useful to contextualize the conditions they

reflect and examine why they are used as a frame of reference. Autonomy means that women have the capacity and conditions to freely make decisions impacting their life. "Economic autonomy" specifically refers to the ability of women to generate income and manage personal financial resources achieved through equal access to paid employment. It also considers how time is used and how women contribute to the economy of care. "Physical autonomy" refers to a women's ability to make choices for herself regarding her sexuality, ability to have children, and right to live in a world free of violence. "Decision-making autonomy" is defined as women's involvement in making decisions that impact their lives and the lives of their communities (Stuart *et. al.*, 2018).

The measurement of inequality is important in itself: there are very few studies that analyse inequality among women, and the majority of existing studies are based on gender inequality. Inequality in several well-being dimensions is a long-lasting state of affairs for which some remedy must be sought (Stuart *et. al.,* 2018). As a result, in this study, a multidimensional inequality framework is used to assess inequality among women, and the dimensions chosen are primarily related to women and are very basic requirements of any human, such as mobility, decision making, non-violence, and very basic amenities.

LITERATURE REVIEW

The job of a woman is typically perceived as housework and child care, or as unpaid family workers particularly in agriculture, where informal and part-time employment is more common, and where atypical work arrangements, like the precariousness of female managers, have grown into a chronic problem (World Economic Forum, 2023; Demir, 2021).

Inequality Among Women in India

India struggles with inequality issues that extend beyond just economic growth and access to educational resources. The empowerment of women in India has advanced more slowly than economic development. India is ranked 127th out of 146 countries in the 2023 Global Gender Gap

Index, which also reveals sizable gaps in economic participation, educational attainment, and health and survival (Global Gender Gap Report 2023; World Economic Forum, 2023). In India, inequality is present in the form of socially constructed, predetermined roles that are deeply ingrained in the country's socio-cultural fabric and its long history. As a rapidly developing country, India is stricken with societal issues associated to sociocultural hegemony and inequality that result in disparities in income and opportunity (Smith *et. al.*, 2014). It is futile to believe that a nation can achieve complete development when approximately half of its population continues to be deprived. (Madhok, 2014). This is particularly true for women in India, who make up 48.2 percent of the country's population of 1.22 billion (Census of India, 2011).

Despite the fact that the proportion of women in the paid workforce is very low, women's participation in the workforce is influenced by their health and educational attainment, as well as other cultural aspects like their mobility. Due to the expectation that young girls and women are frequently expected to handle household duties, the mobility of women is restricted, particularly in many parts of South Asia (Arora, 2012). The idea of the "ideal worker," which assumes long working hours, continuous availability, and complete devotion to work, to the exclusion of any obligations to care for children or other dependents outside of work (Acker, 1990; Lewis, 2001), intersects with Indian hierarchical culture and norms of female interaction in the workplace, has an impact on the positioning of women within these organizations (Gupta, 2017). Women in households with low levels of empowerment are less likely to know about and use energy services, except in the morning, and prefer government grid electricity subsidies at night compared to kerosene and solar home system. Women in households with higher levels of empowerment are less satisfied with energy services, such as community lighting (Alice *et. al.*, 2022).

The literature on female mobility in North India highlights the significance of a woman's position in the household as the most crucial factor affecting her freedom of movement. The study found that daughters-in-law have the least mobility, while the spouses of the head of household or senior females have the most freedom of movement. The study also suggests that increased mobility is linked to greater participation in the labor force, particularly in salaried or wage labor (Mehta *et. al.* 2021). The sociological explanation of female mobility focuses on the role of social identities such as caste and religion. Women from poorer households, particularly those from lower castes like Schedule Castes and Schedule Tribes, have a greater need to work outside the household due to economic necessity (Deshpande and Kabeer 2019). On the other hand, more affluent households tend to have stricter social norms that limit women's mobility in public spaces. In some cases, religious practices like those in Islam have been associated with more restrictive control over women's mobility (Chen and Dreze, 1992; Kingdon and Unni, 2001; Neff *et. al.,* 2012; Mehta *et. al.,* 2021).

The literature also suggests that women's autonomy and freedom of movement are crucial determinants of maternal health care utilization during pregnancy and childbirth. Studies have found that women with higher economic status and those who live with their mothers-in-law are more likely to and women who have experienced the death of one or more of their children are less likely to receive maternal health care (Mondal *et. al.*, 2020). Additionally, factors such as age, education, and number of children have been found to be associated with higher levels of antenatal care. While there is variability in the impact of different dimensions of autonomy on maternal health care, the consensus is that increasing women's agency and mobility is important for improving maternal health outcomes (Bloom *et. al.*,2001; Kannan *et. al.,* 2002; Pallikadavath, 2004).

This literature review highlights several factors that influence the level of nutrition and education of women in households. The education

level of husbands is found to have a positive impact on the nutritional level and educational achievement of wives. Conversely, larger family sizes are associated with lower nutrition levels for women (Majumder, 2007; Barban *et. al.,* 2021). Housing conditions, including the education level of husbands and the type of locality, also affect the level of nutrition for women. Muslim women are less likely to have good educational achievements compared to women from other religious communities. Women from the north-eastern hilly region are more likely to have good educational achievement than women from the south (Majumder, 2007; Sengupta, 2016). Finally, exposure to mass media and leisure has a significant impact on women's autonomy and attitudes toward gender norms. Women who watch TV programs have greater financial independence, stronger negative attitudes toward beating, and a lower tendency to give birth or prefer male children (Ting *et. al.,*2014).

Autonomous decision making has been associated with women having the capacity to consider alternatives, determine their preferences, and carry these out. It is often measured by women having the final say in household decisions (Deere and Twyman, 2011). The overall empowerment and involvement in decision-making procedures empowers women, which progressively governs economic growth significantly **(**Joshi, 2014). The lack of women's autonomy in decision-making is a persistent issue in India, as evidenced by several studies. (Pandey *et. al*., 2021) studied the role of women in decision-making at the household level in Patna city of India. The researchers have computed the Women's Decision-Making Index (DMPI) by surveying 500 women aged 18 to 60 and found that patriarchal dogma has affected women's rights as only 45 percent of the women enjoyed equal rights. Education, employment, and income were the primary factors that appreciated the empowerment of women in all respects. Misra (2021) studied the status of women in decision-making power at different levels such as household, economic freedom, children, society, and awareness of their rights. For this, 278 women from poor backgrounds were surveyed in the urban region of India. The results show a positive relationship between decision-making

indicators and women empowerment. Women are found to be seeking permission or relying on men, indicating a dependence on them. While women in some parts of India, such as the west and northeast, have greater autonomy in decision-making, a significant portion still has to seek permission for visiting relatives and family members. Although women in India own bank accounts in large numbers, they are often not allowed to spend or avail loans independently, despite earning and saving money, studies show that women's financial autonomy is higher in the western and southern regions of India than in the northern parts of the country (Damodaran, 2021).

In male-headed households, married women often experience greater deprivation compared to other female members. They are often subjected to dowry deaths, domestic violence, higher rates of girl child dropouts, and killing of female fetuses. (Sengupta, 2016). Depending on cultural values or needs, education or income for women may be sources of power, but their effects may vary. It has long been acknowledged that education gives women social empowerment, but the relationship between education and women has more nuanced effects because it can raise the risk of violence. Education only provides a protective component at the highest and lowest levels, forming an inverted U-shape. Therefore, a low level of education can be protective, as can a very high level of education, but there may be a backlash effect with a moderate level of education (Jewkes, 2002). In India, violence against women—sexual and other—is a major factor in the persistence of disparities in these areas. As per the data released by NCRB, crime against women rose by 15.3 percent in 2021 from the previous year. A majority of these cases (31.8 percent) fall into the category of "cruelty by husband or his relatives" followed by "assault on a woman with intent to outrage her modesty", kidnapping and abduction, and rape (Source: The Quint, 2022). Ahmad *et. al.*, (2021) in the study found that individual socioeconomic status is strongly associated with the likelihood of a woman reporting intimate partner violence (IPV). Women who have control over their own earnings, participate in household decisions, own property, have freedom

of movement, access to a mobile phone and a bank account, and are more educated are less likely to experience spousal violence. Working women are more likely to experience violence than non-working women whose husbands work. Violence increases with marital duration and the number of children. Women of lower wealth quintiles, Hindus, and women of the scheduled caste community are more likely to experience spousal violence. Even in the wealthiest households, there is still a considerable prevalence of all forms of violence. Spousal violence is more prevalent in rural areas and in communities where a higher proportion of both men and women justify wife-beating.

Approaches to Measuring Inequality

There are two methods for studying inequality across various dimensions among women. The first is the individual approach, which requires examining and discussing the inequality of each dimension separately. There is a wealth of information available, which is an advantage of this method. The second method uses a multidimensional approach that focuses on the dynamics of inequality in a broader and deeper way at different levels. During the last few decades, one of the common elements has been noticed that the dynamics of inequality have been viewed in the unidimensional perspective by using income/expenditure information through different measures like the Gini-coefficient, Theil Coefficient, Coefficient of Variation, and Atkinson Index. However, in the recent past, especially at the beginning of the twenty-first century, different researchers explored the current idea from a multidimensional perspective. Because of the fact that a multidimensional approach provides a broader and deeper view of inequality at different levels (Khan *et. al.,*2020).

Most of the literature that focuses on the multidimensional perspective of inequality mainly focuses on gender inequality or another area where inequality is present. Jorda *et. al.* (2013) explored multidimensional inequality in a global context through Generalized Entropy Index. In addition to this, Rohde and Guests (2013) examine the

multidimensional inequality of the US in the racial context from 1990 to 2007 by employing Massoumi's (1986) multidimensional inequality index. The study by Glassman (2019) uses the Atkinson method to examine how multidimensional inequality varies over time and by state using the dimensions of income, education, health, leisure, vehicle ownership, and housing. A more comprehensive work has been done by Araar (2009) which contributed to the comparative analysis of unidimensional and multidimensional inequality through the Gini coefficient and devised a multidimensional inequality index in Cameroonian. Similar to this, Khan *et. al.*, (2020) used unidimensional inequality, which is based on positive and normative measures (Gini coefficient, Atkinson measure, Generalized Entropy Index) and multidimensional inequality employing the methodology of Araar to analyse the statistics of individual provinces as well as to present the national view of the inequality across various occupations. They used Education, Health, and Housing and Services as dimensions.

The literature includes some of the studies that have been carried out on multidimensional gender inequality. The UNDP developed two indices, the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM), to address gender-related issues faced by women. The GDI is similar to the Human Development Index (HDI) and considers GDP per capita, life expectancy, and education as measures of development. The GDI accounts for existing inequalities in these dimensions to provide a more accurate picture of a country's development. The GEM measures women's active participation in political and economic life and shows the disparity in earned income. The study conducted for Latin America used the HJ-Biplot multivariate technique and shows that the three areas of economic, physical, and decision-making autonomy of women are interconnected and cannot be interpreted in isolation. The relationships and interdependencies among these areas explain the differences in men's and women's participation in the socioeconomic and political environment of the region's nations (Medina-Hernández *et. al.,* 2021). Amendola *et. al.,* (2018) analysed how

the Great Recession has affected the gender disparity in material and social deprivation in Europe by proposing non-monetary multidimensional indexes of deprivation and taking labor, accommodation, health, the standard of living, family life, and social life as a dimensions which takes into account relative concerns. Similarly, (Demir, 2021) used multidimensional scaling analysis to compare the position of women in labor markets with OECD countries and Turkey, using women's employment rates, labor force participation rates, unemployment rates, the proportion of women employed for a partial period, and the proportion of women working as managers as dimensions. Ferrant (2015) investigated how gender inequality impedes economic and human development, as a result of inequalities in the identity dimension, the autonomy of the body, political activity, education, intra-family laws, health, access to economic resources, and economic activity, and used the Multidimensional Gender Inequality Index (MGII).

For the first time in India, Majumder (2007, 2009) used the fuzzy sets theory in accordance with Martinetti (2000) to conduct a multidimensional assessment of Indian women's well-being. Majumder's analysis focused on the accomplishments of women. His study uses data from NFHS-2 and incorporates nutrition/ consumption of food, reproductive life, health and morbidity, housing, education, autonomy, and exposure to mass media and leisure as indicators, but there is no mention of domestic violence in this paper. The data used in the study is old, and since the outbreak of COVID-19, emerging data and reports from frontline sources indicate that various forms of violence against women and girls, especially domestic violence, have escalated (UN Women, 2022), so it is necessary to take into account the latest data and incorporate domestic violence indicators for the analysis.

There aren't many studies about inequality among women at the intrahousehold level in India in the body of existing literature. Most of the prior studies are on gender inequality and it includes the measures of disparity between men and women. The studies frequently overlook

inequality present among women in the society and opportunities available to women within the household. In doing so, they fail to observe crucial aspects of wellbeing that can vary greatly depending on general environmental and household economic indicators. At the household level, there are numerous ways in which women are underrepresented, including in terms of leisure time, time spent doing household chores, education, dietary preferences, employment, freedom of expression, decision-making, domestic violence, and more. As a result, measures of inequality that do not account for intrahousehold allocations are both unreliable and inaccurate.

The majority of the literature on multidimensional inequality in India discusses employment, education, nutrition and health, and housing. However, the literature neglects to address domestic violence, which is a significant factor in studies of inequality and which will have a significant impact on how women are empowered. Most of the literature addresses domestic violence as unidimensional and not multidimensional, that is different forms of violence like physical, emotional, and sexual as well as include other dimensions that restrict women's freedom to make decisions including mobility.

The inequality among women across multiple dimensions presented in this paper is a new proposal that illustrates an analysis that measures asymmetries in different dimensions at the intra-household level by taking indicators and their interdependence using a Multidimensional Inequality Framework.

These indicators assess the degree of disparity women experience at an individual level and within households and are broken down into the following dimensions: domestic violence, decision-making, freedom of movement, and basic amenities.

METHODOLOGY AND DATA

Methodology

Alongside the significance of evaluating deprivation in well-being, there is consensus on the importance of assessing inequality in non-monetary dimensions, such as education, health, and basic infrastructures, where the latter are the main components for developing human capital and providing a chance to escape from inequality. Ethically, the population should have equal access to fundamental needs. This, in turn, necessitates a reduction in inequities in the provision of these needs. The indexing method is considered a simple technique for exploring multidimensional inequality because it does not involve any sensitivity parameter (ε) or substitution parameter (β). As a result, in the absence of both parameters, the specific measure fails to predict the actual situation of multidimensional inequality in the area under study (Khan *et. al.*, 2020). To compensate for these shortcomings, the current study used a well-formulated version of Araar's multidimensional inequality measurement index (2009). The desired feature of the multidimensional inequality (MDI) index used here is its ability to be decomposed by components or dimensions of well-being. The index is statistically defined as follows:

$$MDI = \sum_{k=1}^{K} \varphi_k \left[\lambda_k \pi_k + (1 - \lambda_k) G_k\right]$$

In the equation, '*k*' represents the total number of dimensions, while 'φ_k' is the weight attributed to the dimension k (may take the same value across the dimensions or can depend on the averages of the well-being dimensions). Two other measures, 'π_k' is the index of inequality of component *k* and 'G_k' is the concentration indices of component *k,* concentration indices measure inequality in one variable over the distribution of another. Finally, 'λ_k' is the sensitivity parameter, with a value ranging from 0 to 1 which controls the sensitivity of the index to the inter-correlation between dimensions. For $\lambda_k = 1$, society is more

sensitive to inequality compared to values below zero. If component k perfectly substitutes another set of components, it is suitable to setλ_k to zero. Conversely, if the component is a perfect complement, λ_k will converge to one.

The MDI index features a flexible functional form that meets the essential properties expected of inequality indices. It enables to establish a comprehensive order for social welfare by accounting for the multidimensional nature of well-being. Additionally, this index is easily interpretable considering its functional form and its easily understandable components. Furthermore, this index is multi-level decomposable, allowing analysis by components or dimensions as well as by unidimensional and multidimensional forms of inequality.

DATA

Source

The National Family Health Survey (NFHS) conducted by the Ministry of Health and Family Welfare (MOHFW), Government of India with the International Institute for Population Sciences (IIPS) Mumbai, as the nodal agency, is a large-scale, multi-round survey conducted in a representative sample of households across India. Since its inception in 1992-93, five rounds of the survey have been conducted. The survey gathers state and national-level data on various aspects such as fertility, infant and child mortality, family planning practices, maternal and child health, reproductive health, nutrition, anaemia, and the utilization and quality of health and family planning services. Each successive round of the NFHS has had two specific goals: a) to provide essential data on health and family welfare, which are crucial for the Ministry of Health and Family Welfare and other agencies for policy and program development and b) to provide information on important emerging health and family welfare issues.

Data Description

The study uses individual-level survey data from NFHS-4 for 2015–2016 and NFHS-5 for 2019-2021. The NFHS-4 sample includes 601,509 households surveyed, with 699,686 qualified women aged 15 to 49 participating in individual women's interviews. However, only 62,716 ever-married women who participated in the domestic violence module and of whom 44,369 come from rural households and 18,347 from urban ones, were qualified for the study. The NFHS-5 sample consists of 636,699 households surveyed, with 724,115 qualified women aged 15 to 49 participating in individual women's interviews. Only 60,480 women who had ever been married were eligible for the study in this case as well; of these, 14,553 women lived in urban households and 45,927 in rural ones. To obtain meaningful results, a stepwise estimation of inequality is assessed. The first step involves choosing the essential dimensions. Second, is the accumulation of sub-dimensions through a weighted approach to make a single composite indicator.

Dimensional and Sub-Dimensional Framework

The selection of appropriate dimensions and identification of a suitable set of indicators is a critical step. The study employs four essential dimensions to materialize the core ideology: (1) decision making; (2) nonviolence; (3) freedom of movement; and (4) basic amenities. Each dimension is further subdivided into a set of sub-indicators. The estimation process involves a women’s age, educational attainment of her partner, her caste, her religion, area of residence, and the states/UTs they belong to.

Table 1 Overall Dimension Profile and the Associated Set of Sub-Dimensions.

Dimension	Indicators
Decision making	Can make decisions about their healthcare or not? Can take decisions on major household purchases or not? Can take decisions about visiting family or relatives or not?
Absence of Domestic Violence	Never faced physical violence or not? Never faced sexual violence or not? Never faced emotional violence or not?
Freedom of movement	Is she allowed to go to the market alone or not? Is she allowed to go outside the village/community alone or not?
Basic amenities	Does she have access to LPG or not? Does she have health insurance or not? Does she own a mobile phone or not? Does she get to watch television at least once a week or not?

Note: (1) All the dimensions indicate positive status. (2) Appendix Tables A.1 to A.4 gives summary statistics for all variables used in the analysis.

Table A.1 shows the proportion of women who say 'yes' to the three sub indicators on decision making. First, we observe that more than three-fourths of women are able to take a decision in 2015-16 and their share has gone up further by 2019-21. Among the three sub-components, household purchase has a marginally lower share and this more apparent when we consider the distribution across individual and household characteristics of these women. At an individual level, the proportion of women who can take decisions is highest for the age group 45-49 and marginally higher for women whose husband's education level is above higher secondary level. At the household level, there are marginal differences across caste groups with other caste women being at an advantage. Muslim women seem to be at some disadvantage followed by Hindus but all other minority religions have higher percentages. Urban women have the highest proportion of women for all the sub indicators in both the periods.

Table A.2 shows the summary statistics for the two indicators of freedom of movement. About 50-60 percent women report freedom of mobility and this has shown hardly any improvement over time. At an

individual level, women belonging to the age group 45-49 have the highest proportion who have freedom of movement while the age group 15-19 has the lowest, in this also women's husband has higher education level has the highest proportion of women. At the household level, the trend is similar to that of the decision making dimension for the caste, with Jain women having the highest share or both years. For this dimension, also the urban women have more proportion than the rural women do.

Table A.3 shows the summary statistics for the three indicators of no domestic or intimate partner violence against women. The three dimensions vary in the non-prevalence rate with sexual violence reported the least followed by emotional and physical violence but with a much larger gap. At an individual level, the highest proportion of women who do not face any type of domestic violence is for the age group 15-19 and the women whose husband has higher than secondary level of education. At the household level, the caste other than the major caste has the highest proportion of women who do not face any violence. Women belonging to Jain and Sikh religions have the highest proportion while women from the Hindu religion and urban women have the lowest proportion for both the years 2015-16 and 2019-21.

Table A.4 shows the summary statistics for the four indicators of access to basic amenities. Compared to the earlier indicators, one observes that Insurance penetration is very low and so is the use of LPG. The proportion of women for all the amenities has increased for all the sub indicators except for the women who watch television at least once a week from the year 2015-16 to 2019-21. Individually, women between the ages of 40 and 44 have the most access to essential amenities such as LPG, insurance, mobile phones, and television. The schedule tribe has the largest percentage of women in insurance among all castes, but the lowest percentage of women in LPG, mobile, and television at the household level. Women from the Jain religion have the largest proportion of LPG, mobile, and television ownership, while women from the Sikh religion have the highest proportion of insurance ownership. The women who belong to the rural area have a very less proportion of women who have access to basic amenities.

Standardization and Aggregation

All of the indicators used in this investigation are dichotomous, however since categorical values were standardized[1] in the literature (Araar, 2009; Khan *et. al.,* 2020), we concluded it was appropriate to do so. In the literature, indicators have been standardized by two common approaches. One approach is to divide each dimension by its mean. The advantages in this case are that each dimension has a mean equal to one and values are unitless. A disadvantage is that this method doesn't make sense when there are negative values. A second approach is to subtract the minimum from each value and then divide it by the range of values. Means are different in this case but all dimensions range from zero to one (Glassman, 2019). In this study, the first method of standardization is used as all the indicators have non-negative values.

While the individual method is useful in understanding inequality in individual dimensions, it is less useful in comparing overall inequality changes over time or between geographic areas. In order to do this, the aggregate method is used. The aggregate method entails aggregating the individual sub indicators into a single dimension using equal weights. Equal weighting is the most common method in the literature. This is generally done to refrain from making value judgments about which dimension is more important than another. The weights given to sub-indicators for decision making is 1/3, for freedom of movement is 1/2, for no violence it is 1/3, and for basic amenities, it is 1/4.

Decision making = 1/3(Own Health + Household purchase + Visits to relative)
Freedom of movement = 1/2(Market + Outside)
No violence = 1/3(Physical + Sexual + Emotional)
Basic amenities = 1/4 (LPG + Insurance + Mobile + Television)

[1] In a few cases, the obtained indexes were zero when the values weren't standardized.

RESULTS AND DISCUSSION

Multidimensional Inequality

While the unidimensional method is useful in understanding inequality in individual dimensions, it is less useful in comparing overall inequality changes over time or between geographic areas. In order to do this, the multidimensional method is used. The multidimensional method involves aggregating the individual dimensions into a single inequality measure. In this method, the Araar measure for measuring the multidimensional inequality index is used.

The multidimensional inequality estimates for India for the years 2015–16 and 2019–21 are presented in Table 4.2. The sensitivity parameters(λ) used in the study are 0, 0.1, 0.5, 0.9, and 1.0. The empirical estimates suggest that the overall inequality has decreased over the year. It has also been observed that on changing the value of lambda from 0 to 1 inequality declined from 2015-16 to 2019-21. On taking λ=0, the inequality decreased from 21 percent to 18 percent, and on taking λ=1, the inequality decreased from 31.7 percent to 27.7 percent. The relative contribution of amenities in multidimensional inequality taking λ=0 is 34.5 percent in 2015-16 while 28.5 percent in 2019-21, the contribution of amenities in multidimensional inequality might have decreased over the year due to many policy measures taken by the government.

Table 2: Multidimensional Inequality using Araar index

ARAAR (Multidimensional Inequality)										
Sensitivity Parameter	**λ = 0**		**λ = 0.1**		**λ = 0.5**		**λ = 0.9**		**λ = 1**	
	2015-16	**2019-21**	**2015-16**	**2019-21**	**2015-16**	**2019-21**	**2015-16**	**2019-21**	**2015-16**	**2019-21**
Overall	0.211	0.184	0.221	0.193	0.264	0.231	0.306	0.231	0.317	0.277
Relative contribution										
Amenities	34.54	28.47	34.54	28.98	34.54	30.61	34.53	31.8	34.53	32.04
Freedom of movement	42.37	49.31	41.39	47.85	38.27	43.18	36.01	39.81	35.54	39.11
Decision making	16.52	14.6	16.76	14.81	17.51	15.49	18.06	15.98	18.17	16.08
Non Violence	6.57	7.63	7.31	8.36	9.68	10.71	11.39	12.41	11.75	12.76

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

Though not substantial number of women are benefited by the schemes brought by the government, still there is an increase in the household that have access to LPG over the year under Pradhan Mantri Ujjwala Yojana. Similarly, women can have health insurance under Ayushman Bharat Yojana scheme, which provides security against the risk of medical and financial uncertainty. The relative contribution of freedom of movement in multidimensional inequality has increased over the year, there are various factors that limit women's mobility in India, including safety concerns, cultural norms, and economic factors. Women are the most mobile when visiting the market and least mobile when visiting relatives and women from urban areas are more mobile than those in rural areas (Mehta, 2021). This could also be because a significant number of women and girls face harassment and/or violence in public spaces and public transport. The main driving force for some of the achievements could be the increased role of women in economic growth. The advancement of women's roles contributes to growth in various ways: better education and health outcomes, higher participation in the labor force, reduced discrimination and wage gaps leading to greater effort, and improved promotion practices that promote talented women's progression into leadership and managerial positions (Kerr, 2016). The contribution of non-violence in the multidimensional inequality is the least since only 30 percent in 2015-16 and 28 percent in 2019-21 women reported physical violence and the prevalence of sexual and emotional violence ranges between 10 percent -15 percent. The corresponding values are given in Table A.1 (see Appendix).

Individual Level

In Table 3, inequality among women belonging to different age groups is estimated. Multidimensional inequality is found to be particularly high for the age group of 15 to 19 among all age groups, but it has decreased from the years 2015 to 2016 to 2019 to 21. The inequality decreases with age, and when it reaches the age range of 30-34, it falls below the multidimensional inequality of nations. Teenage women (15-19) experience significant levels of inequality because they spend more time

on housework, are less likely to have access to the internet and other forms of media, and are more likely to get married and have children.

Table 3: Multidimensional Inequality using Araar Index for Different Age Groups

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
Age	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
15-19	0.294	0.274	0.308	0.285	0.362	0.332	0.417	0.378	0.431	0.39
20-24	0.25	0.227	0.262	0.238	0.309	0.281	0.356	0.324	0.368	0.334
25-29	0.219	0.197	0.23	0.207	0.275	0.247	0.321	0.286	0.332	0.296
30-34	0.197	0.175	0.208	0.184	0.25	0.22	0.293	0.256	0.304	0.265
35-39	0.192	0.167	0.202	0.176	0.242	0.21	0.282	0.244	0.292	0.253
40-44	0.182	0.163	0.192	0.172	0.231	0.207	0.27	0.242	0.28	0.251
45-49	0.178	0.164	0.188	0.173	0.229	0.209	0.269	0.244	0.279	0.253
Population	0.208	0.184	0.219	0.193	0.262	0.231	0.305	0.268	0.316	0.277

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

In Afghanistan, Bangladesh, Bhutan, India, Nepal, and Laos, over 25 percent of girls are already married by the time they turn 18 (Vaughan, 2020), and they have little control over the decisions that affect their own health. Teenage girls who are married have little control over household expenses and experience a lot of violence. Additionally, as people get older, their mobility, negotiating power, and ability to make decisions about their own health, major purchases for the home, and visiting a relative all increases (see Appendices A.1 and A.2).

The findings of Table 4 illustrate the multidimensional inequality in India given the education of women's partner/husband. Partner education is divided into 5 categories, 1) men who are not educated; 2) men who have primary education; 3) men who have secondary education; and 4) men who have higher education. The overall inequality has decreased from 2015-16 to 2019-21 on changing the value of lambda

from 0 to 1. On taking normative parameter λ = 0, the multidimensional inequality has significantly declined for the women whose husbands are either illiterate or have primary education. It could be concluded from the results that the women whose partner has higher education have less inequality in comparison with the women whose partner has no education. Partner's education is one of the factors for checking the inequality since on increasing the education level the inequality among women decreases. From the results, it could be said that women whose husbands have higher levels of education are more likely to have greater autonomy, higher levels of education, and better economic outcomes (Bhandari *et. al.,* 2016).

Table 4: Multidimensional Inequality using Araar Index Given Women's Partner/Husband Education– 2015-16 and 2019-21

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
Partner Education	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
No Education	0.23	0.195	0.244	0.207	0.298	0.255	0.351	0.303	0.365	0.315
Primary	0.215	0.193	0.227	0.203	0.276	0.245	0.326	0.287	0.338	0.297
Secondary	0.206	0.182	0.216	0.191	0.258	0.228	0.3	0.264	0.31	0.273
Higher	0.172	0.159	0.178	0.165	0.205	0.189	0.231	0.213	0.238	0.219
Population	0.208	0.184	0.219	0.193	0.262	0.231	0.305	0.268	0.316	0.277

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

Household Level

In Table 5, inequality among women belonging to different religions is estimated. Among major religions followed in India, it is found that Muslim women have the highest multidimensional inequality value followed by Hindu, Sikh, Buddhist, Christian, and Jain. Women from religions other than major religions also have very high inequality, the reason could be that 43 percent and 55 percent of this group from 2015-16 and 2019-21 respectively belong to the lowest wealth quintile (poorest). Jain has the least inequality among women since it is the most affluent religion comprising 64 percent and 72 percent of women from 2015-16 and 2019-21 respectively belonging to the highest wealth

quintile followed by the Sikh religion. Jain women also comprise the maximum percentage of women having the highest level of education i.e. (36 percent in 2015-16 and 43 percent in 2019-21). Women belonging to Hindu and Muslim religions show almost similar characteristics in terms of wealth index, but Hindu women tend to have more higher education than Muslim women (Table A.1: See Appendix). Muslim and Hindu women differ very little from each other on some dimensions of empowerment (e.g., household decision making power) and compared with Hindu women, Muslim women are more likely to participate in veiling, less likely to go on family outings to places like fairs and movie theatres, and less likely to be employed (Desai and Temsah, 2014).

Table 5: Multidimensional Inequality using Araar Index Given Women's Religion

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
Religion	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
Hindu	0.209	0.182	0.22	0.191	0.262	0.228	0.304	0.265	0.315	0.274
Muslim	0.216	0.2	0.229	0.211	0.278	0.256	0.327	0.301	0.34	0.312
Christian	0.161	0.146	0.172	0.154	0.216	0.188	0.26	0.222	0.27	0.231
Sikh	0.179	0.146	0.187	0.151	0.218	0.172	0.248	0.192	0.256	0.197
Buddhist	0.171	0.187	0.178	0.196	0.208	0.234	0.237	0.272	0.245	0.281
Jain	0.11	0.126	0.116	0.13	0.141	0.149	0.165	0.167	0.171	0.171
Other	0.217	0.19	0.227	0.198	0.267	0.228	0.308	0.259	0.318	0.267
Population	0.208	0.184	0.219	0.193	0.262	0.231	0.305	0.268	0.316	0.277

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

In Table 6, inequality among women belonging to different castes is estimated. The overall inequality among all the castes has decreased over the year. The castes other than Schedule Caste(SC), Schedule Trible(ST), and Other Backward Class(OBC), has the least inequality on ranging normative parameter between 0 and 1. Women belonging to schedule tribe has the highest inequality, taking λ = 0 it is 22.5 percent in the year 2015-16 and 19.3 percent in the year 2019-21, while women from Other caste has the lowest inequality on taking the same value of λ, that is 18.9 percent and 16.8 percent in the year 2015-16 and 2019-21 respectively. The reason behind STs women having the highest inequality

could be those about 40.7 percent and 45.35 percent of women in the year 2015-16 and 2019-21 respectively belong to the lowest quintile of wealth (poorest) and 49.1 percent of women in the year 2015-16 and 42 percent women in the year 2019-21 have no education (Table A.6: see Appendix). Due to their residence in remote areas and historical economic disadvantages, Scheduled Tribes (STs) in India often face challenges in accessing improved facilities that enhance their standard of living and enable them to exercise their basic rights and access better amenities. (Pradhan *et. al.*, 2022). In contrast, women from other castes, show the least inequality since 39 percent and 36.34 percent of women in the year 2015-16 and 2019-21 respectively belong to the highest wealth quintile (richest), and also 52.07 percent of women in the year 2015-16 and 50.38 percent women in the year 2019-21 have the secondary level of education, and also this caste group has the maximum women with the highest level of education (See Table A.6). OBC is one of the largest parts of Indian demographic, although OBC and SCs have the almost same level of inequality but the percentage of women belonging to the poorer quintile of wealth in SC is more in comparison to OBC women, that is the percentage of OBC women belonging to the richer and richest quintile is more than STs. Also, more of OBC women tend to have higher education than that of SC women.

Table 6: Multidimensional Inequality using Araar index given women's caste

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
Caste	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
Schedule caste	0.213	0.183	0.225	0.193	0.271	0.233	0.318	0.273	0.329	0.283
Schedule tribe	0.225	0.195	0.237	0.205	0.287	0.247	0.337	0.288	0.349	0.298
OBC	0.212	0.187	0.224	0.197	0.269	0.235	0.315	0.274	0.326	0.284
Other	0.189	0.168	0.197	0.175	0.23	0.204	0.263	0.233	0.271	0.241
Population	0.208	0.184	0.219	0.193	0.262	0.231	0.305	0.268	0.316	0.277

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

Regional and State Level

In Table 7, inequality among women is illustrated given their area of residence. The inequality has declined from 2015-16 to 2019-21 but the level of inequality in rural areas is still above the nation's average level of inequality. On taking λ = 0, the multidimensional inequality in rural areas is 22.6 percent in the year 2015-16 and 19.5 percent in the year 2019-21, and on taking the same value of lambda the inequality in urban areas is 16.7 percent, and 15.1 percent for the year 2015-16 and 2019-21, respectively. The reason for high inequality could be because the access to basic amenities in rural areas is far below the proportion of the urban population. The proportion of women who have LPG is just 41 percent in rural areas in comparison with 86.34 percent of women in urban areas for the year 2019-21 (Table A.4: see Appendix).

Table 7: Multidimensional Inequality using Araar Index Given Area of Residence

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
Area of residence	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
Urban	0.167	0.151	0.175	0.158	0.209	0.185	0.242	0.213	0.25	0.22
Rural	0.226	0.195	0.238	0.205	0.287	0.248	0.336	0.291	0.348	0.301
Population	0.208	0.184	0.219	0.193	0.262	0.231	0.305	0.268	0.316	0.277

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

In Table 8, inequality among women belonging to different states is illustrated. Almost all the states have shown a decline in multidimensional inequality from the year 2015-16 to the year 2019-21. But on taking λ = 0, the states Arunachal Pradesh, Goa, and Maharashtra showed a marginal increase in multidimensional inequality over the year, though on increasing the value of the sensitivity parameter the inequality declines for Maharashtra. For all three states, the major contributors are amenities and freedom of movement. Among all the states Bihar has the largest multidimensional inequality followed by Uttar Pradesh, Madhya Pradesh, Odisha, Rajasthan, Jharkhand, Assam, Haryana, and Gujarat.

With λ=0.5, the dimensions that are major contributors to multidimensional inequality among these states are again amenities and freedom in both the years (2015-16 and 2019-21) (Table A.7: see Appendix).

With the suggested parameter (λ=0.5), for Bihar, Uttar Pradesh, and Odisha the contribution of freedom of movement for multidimensional inequality has increased while the contribution of decision making has decreased over the span of years. For Madhya Pradesh, there's not much change in the contribution of each dimension in multidimensional inequality while for Rajasthan, Jharkhand, and Assam the contribution of amenities for multidimensional inequalities has decreased and the contribution of freedom of movement has increased for these states as well. Haryana showed an increased contribution of amenities and decision making and a marginal increase in the freedom of movement. Among UTs, Lakshadweep and have the largest multidimensional inequality in the year 2015-16 but for Dadra and Nagar Haveli and Daman and Diu, the inequality declined manifold in the year 2019-21. Tables A.8 and A.9 (See Appendix) shows that taking wealth index and educational attainment of women into account Bihar, Jharkhand, and Uttar Pradesh are the most deprived state with the maximum percentage of women either belonging to the poorest quintile or poorer quintile of wealth index and also the maximum percent of women have no education. Assam on the other hand has more women in the lowest quintile of the wealth index but the percentage of women attaining secondary education is maximum, while in Rajasthan though the wealth index has less inequality but still the women not attaining education is very high. The least multidimensional inequality among women is found in Goa and Himachal Pradesh, in both these states the women belonging to the highest quintile are the maximum, and also the maximum number of women have a secondary level of education. From the results, it could be concluded that states with people in the lower quintile of the wealth index and no education have more multidimensional inequality.

Table 8: Multidimensional Inequality across different states of India 2

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
State	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
Andhra Pradesh	0.167	0.165	0.178	0.173	0.223	0.205	0.267	0.237	0.278	0.245
Arunachal Pradesh[@]	0.158	0.169	0.167	0.176	0.204	0.208	0.24	0.239	0.249	0.247
Assam*	0.226	0.177	0.237	0.187	0.279	0.223	0.322	0.26	0.333	0.269
Bihar[*]	0.257	0.192	0.273	0.204	0.335	0.252	0.397	0.301	0.413	0.313
Chhattisgarh	0.186	0.167	0.196	0.174	0.237	0.203	0.279	0.233	0.289	0.24
Goa[@]	0.117	0.148	0.121	0.154	0.133	0.177	0.146	0.2	0.149	0.206
Gujarat	0.207	0.159	0.215	0.165	0.248	0.187	0.28	0.21	0.289	0.216
Jammu and Kashmir	0.169	0.157	0.177	0.166	0.21	0.2	0.243	0.234	0.251	0.243
Jharkhand[*]	0.223	0.182	0.235	0.191	0.284	0.227	0.332	0.263	0.344	0.272
Kerala	0.2	0.178	0.21	0.186	0.25	0.216	0.29	0.247	0.3	0.255
Madhya Pradesh[*]	0.246	0.218	0.259	0.229	0.309	0.271	0.359	0.313	0.371	0.324
Meghalaya	0.174	0.138	0.183	0.145	0.221	0.175	0.258	0.205	0.268	0.212
Mizoram	0.098	0.087	0.101	0.09	0.117	0.104	0.132	0.117	0.136	0.12
Nagaland	0.177	0.138	0.185	0.144	0.215	0.169	0.245	0.193	0.252	0.2
Odisha[*]	0.235	0.213	0.249	0.223	0.304	0.265	0.359	0.307	0.373	0.317
Punjab	0.167	0.145	0.174	0.15	0.205	0.17	0.236	0.191	0.244	0.196
Rajasthan[*]	0.239	0.19	0.249	0.197	0.291	0.229	0.333	0.26	0.344	0.268
Sikkim	0.094	0.111	0.096	0.116	0.102	0.137	0.108	0.157	0.11	0.163
Tamil Nadu	0.155	0.15	0.164	0.157	0.202	0.188	0.239	0.22	0.248	0.227
Telangana	0.166	0.153	0.177	0.163	0.222	0.201	0.267	0.24	0.278	0.25
Tripura	0.15	0.153	0.158	0.16	0.188	0.188	0.219	0.215	0.226	0.222
Uttar Pradesh[*]	0.25	0.216	0.262	0.227	0.312	0.27	0.361	0.314	0.374	0.324
Uttarakhand	0.148	0.145	0.153	0.15	0.174	0.173	0.195	0.195	0.201	0.201
West Bengal	0.182	0.176	0.19	0.184	0.221	0.216	0.252	0.247	0.26	0.255
Andaman And Nicobar	0.119	0.091	0.125	0.095	0.148	0.11	0.172	0.126	0.178	0.129

[*] represents the states that has inequality above the population inequality.
[@] represents the states where inequality has increased from 2015-16 to 2019-21.

Sensitivity Parameter	λ = 0		λ = 0.1		λ = 0.5		λ = 0.9		λ = 1	
State	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21	2015-16	2019-21
Islands										
Chandigarh	0.124	0.096	0.128	0.098	0.144	0.105	0.16	0.113	0.164	0.115
Dadra and Nagar Haveli and Daman and Diu*	0.231	0.094	0.241	0.099	0.28	0.12	0.32	0.14	0.329	0.146
Delhi	0.184	0.144	0.191	0.149	0.22	0.169	0.249	0.19	0.256	0.195
Lakshadweep*	0.276	0.233	0.285	0.239	0.321	0.26	0.357	0.281	0.365	0.286
Puducherry	0.159	0.156	0.17	0.162	0.212	0.188	0.254	0.214	0.264	0.22
Population	0.208	0.184	0.219	0.193	0.262	0.231	0.305	0.268	0.316	0.277

Note: Author's own compilation using individual level data
Source: NFHS 4(2015-16) and NFHS 5(2019-21)

CONCLUSION

This paper concludes that, while multidimensional inequality among women has decreased over the year, certain groups of women continue to be more unequal than their counterparts. Inequality among groups decreases as women's education and wealth levels rise.

The existing literature on gender inequality in India primarily focuses on disparities between men and women and overlooks the inequality present among women within households. Women face under-representation in various aspects such as leisure time, education, dietary provision, employment, freedom of movement, and decision-making. To add to these issues, they face the disproportionate burden of household chores and even suffer from domestic violence. The literature on multidimensional inequality in India mainly covers employment, education, nutrition and health, and housing, but ignores domestic violence, which is a crucial factor in studies of inequality and affects women's empowerment. To address this gap, this paper proposes a

*represents the states that has inequality above the population inequality.
@ represents the states where inequality has increased from 2015-16 to 2019-21.

Multidimensional Inequality Framework that measures asymmetries in various dimensions within households, including domestic violence, decision-making, freedom of movement, and basic amenities, using indicators that assess the degree of disparity women experience.

This study used data from two National Family Health Surveys NFHS 4 (2015-16) and NFHS 5 (2019-2021) to examine trends in inequality using Atkinson and Araar indices, taking into account variables such as age, education, caste, and religion. The findings indicate that although there was an overall decrease in inequality in the period between 2015-16 to 2019-21, several groups of women continue to face significant inequality. The results showed that unidimensional inequality decreased over time for all the dimensions with amenities being the dimension with the highest decline. The dimension on amenities was the most unequal while decision-making was the least unequal.

Multidimensional inequality also decreased overall, with freedom of movement having the highest contribution to individual-level inequality. The inequality level is high among the youngest age group of women aged 15 to 19 years. As women age and increase their bargaining power and decision-making authority, inequality decreases. Jain women had the least inequality due to their affluence and high education levels, while Hindu and Muslim women showed similar levels of inequality. However, Hindu women tend to have higher education levels than Muslim women. Muslim women are less likely to participate in decision making and less likely to go outside alone. Women from other religions had high inequality among them, potentially due to belonging to the poorest wealth quintile. Women from Scheduled Tribes experience the highest level of inequality based on their caste, this may be because Scheduled Tribes are often located in remote areas and have historically been economically disadvantaged, which limits their access to improved living standards, basic rights, and better amenities. The Other Backward Classes (OBC) make up a significant portion of the Indian population, and while the level of inequality is similar between OBC and Scheduled Castes

(SC), a higher percentage of SC women belong to the poorest quintile of wealth compared to OBC women. Additionally, a greater proportion of OBC women tend to have higher levels of education than SC women. While women from other castes have the lowest level of inequality.

At the regional level, rural women tend to experience higher levels of inequality than urban women, which may be due to the lower proportion of basic amenities available in rural areas, less participation in decision making and less mobility compared to the urban population. A slight increase in multidimensional inequality was observed in the states of Arunachal Pradesh, Goa, and Maharashtra between 2015-16 and 2019-21. Amenities and freedom of movement were the major contributors to inequality in all three states. Bihar had the highest multidimensional inequality among all states, followed by Uttar Pradesh, Madhya Pradesh, Odisha, Rajasthan, Jharkhand, Assam, Haryana, and Gujarat. Bihar, Jharkhand, and Uttar Pradesh were the most deprived states in terms of women's wealth index and educational attainment, with the highest percentage of women in the poorest or poorer quintiles of the wealth index and no education. In Assam, more women were in the lowest quintile of the wealth index, but the percentage of women with secondary education was the highest, while in Rajasthan, although the wealth index had less inequality, the number of women not attaining education was very high. Among Union Territories, Lakshadweep had the highest inequality in 2015-16, but inequality declined sharply in Dadra and Nagar Haveli and Daman and Diu in 2019-21. The least multidimensional inequality among women was found in Goa and Himachal Pradesh, where the highest percentage of women belonged to the highest quintile of the wealth index and had completed secondary education.

LIMITATIONS

There are two major limitations to this study. The first is what indicators to choose to assess inequality is subjective and depends on the researcher. If there could be a normative way to choose the indicators then it will be useful for policy purposes. The second is that Multidimensional Inequality is difficult to interpret and calculate and hence cannot be scaled up or calculated periodically like the gender development index or Gender Inequality Index so its use and applicability are limited. The NFHS-5 fieldwork in India was divided into two phases: Phase I, which lasted from 17 June 2019 to 30 January 2020 and covered 17 states and 5 UTs, and Phase II, which lasted from 2 January 2020 to 30 April 2021 and covered 11 states and 3 UTs. Finally, several studies and media reports cited an increase in domestic violence during COVID lockdowns. The findings from this study do not corroborate if states surveyed in Phase II after the Covid-19 lockdowns reported higher domestic violence compared to their pre-existing levels. This is perhaps attributed to a general question on the way questionnaires are asked. For instance ever been slapped by husband/partner, ever been physically forced into unwanted sexual acts by husband/partner and ever been humiliated by husband/partner. As a result, this may not have captured any short term changes in domestic violence.

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APPENDIX TABLES

Table A.1: Summary Statistics for the Three Indicators on Freedom For Decision Making Across Individual And Household Characteristics. (Percentage)

	2015-16			2019-21		
	Own Health	Household purchase	Visits to relative	Own Health	Household purchase	Visits to relative
Age						
15-19	62.07	58.7	60.24	67.16	65.06	67.82
20-24	70.63	67.81	69.86	77.37	74.27	74.99
25-29	73.35	72.72	73.09	79.43	77.28	79.46
30-34	76.95	75.69	76.61	82.75	81.22	83.25
35-39	77.96	78.17	79.62	84.63	83.9	84.82
40-44	79.08	80.11	79.91	83.7	84.1	84.41
45-49	79.63	79.45	80.18	83.74	83.8	85.54
Husband/partner's education level						
No education	73.23	74.3	73.13	79.93	79.82	79.84
Primary	74.93	73.85	74.7	82.2	80.78	80.83
Secondary	75.56	74.23	75.68	81.6	80.24	81.92
Higher	79.28	78.65	80.33	83.67	81.73	85.23
Don't know	70.53	69.36	69.01	81.3	79.54	80.56
Caste						
Schedule Caste	75.99	75.51	75.96	81.54	80.47	81.77
Schedule Tribe	75.86	75.11	76.56	82.46	80	81.7
OBC	73.93	73.29	73.82	80.92	80.34	81.55
Other	77.74	76.59	78.35	83.54	81.59	83.66
Don't know	75.26	74.09	74.64	77.43	69.55	77.45
Religion						
Hindu	75.39	74.79	75.73	81.89	80.71	82.19
Muslim	73.76	73.43	72.85	79.37	78.17	78.91
Christian	81.2	81.77	82.41	84.39	84.68	86.62
Sikh	82.23	72.95	80.13	87.63	83.63	86.09
Buddhist	86.02	78.68	87.74	78.82	70.99	76.33
Jain	85.65	81.31	81.62	92.31	84.63	94.84
Other	84.63	77.23	80.97	87.11	85.31	85.08
Region						
Urban	77.16	78.02	79.5	83.93	83.47	84.82
Rural	74.7	73.07	73.66	80.72	79.11	80.59
Total	75.57	74.81	75.72	81.73	80.48	81.92

Table A.2: Summary Statistics for the Two Indicators on Freedom of Movement Across Individual and Household Characteristics (in Percentage).

	2015-16		2019-21	
	Market	Outside	Market	Outside
Age				
15-19	28.12	25.54	29.03	27.24
20-24	40.79	35.83	41.83	37.06
25-29	52.71	45.63	52.58	45.95
30-34	60.41	52.67	61.09	53.97
35-39	64.34	56.5	64.68	57
40-44	66.45	60.2	67.55	59.43
45-49	69.12	62.04	66.62	60.83
Husband/partner's education level				
No education	58.12	53.32	60.43	55.02
Primary	57.59	51.81	58.47	52.62
Secondary	55.47	48.51	57	49.93
Higher	63.25	53.29	62.36	54.66
Don't know	41.85	37.32	57.18	50.7
Caste				
Schedule Caste	58.01	52.35	60.67	54.12
Schedule Tribe	57.27	50.41	59.29	53.74
OBC	55	48.18	55.61	48.03
Other	61.37	53.52	63.08	55.91
Don't know	55.88	49.17	59.78	47.69
Religion				
Hindu	58.26	51.44	59.71	52.68
Muslim	49.12	43.58	48.92	45.13
Christian	60.25	47.08	63.68	50.44
Sikh	61.01	55.49	71.64	66.81
Buddhist	74.58	62.18	61.88	51.34
Jain	80.47	65.55	70.44	62.98
Other	68.33	70.29	69.81	67.72
Region				
Urban	65.39	55	67.21	55.76
Rural	53.01	48.15	54.7	50.17
Total	57.37	50.56	58.63	51.93

Table A.3: Summary Statistics for the Three Indicators of No Violence Across Individual and Household Characteristics (in Percentage).

	2015-16			2019-21		
	Physical	Sexual	Emotional	Physical	Sexual	Emotional
Age						
15-19	80.41	94.16	88.16	82.55	94.52	91.18
20-24	73.77	93.41	88.65	75.38	94.89	88.31
25-29	70.16	92.91	87.02	73.21	94.72	88.08
30-34	69.28	93.14	86.77	70.53	94.3	86.84
35-39	68.45	93.03	85.78	71.04	94.23	87.34
40-44	69.46	93.78	86.21	70.71	95.13	86.73
45-49	68.32	93.33	85.06	70.54	94.59	86.83
Husband/partner's education level						
No education	58.11	89.98	80.76	62.3	91.96	82.27
Primary	63.01	91.35	84.19	65.61	92.79	84.29
Secondary	72.56	93.97	87.72	73.51	95.13	88.46
Higher	84.77	96.79	93.36	83.65	97.39	92.62
Don't know	65.09	87.72	83.59	73.92	94.69	85.63
Caste						
Schedule Caste	63.13	91.22	83.51	67.11	93.58	84.73
Schedule Tribe	66.23	91.13	84.58	68.9	94.01	86.75
OBC	69.01	93.53	86.48	70.95	94.93	87.89
Other	78.47	95.25	90.49	79.62	95.66	89.42
Don't know	75.32	93.42	85.97	73.92	94.27	88.9
Religion						
Hindu	69.65	93.26	86.59	71.2	94.66	87.24
Muslim	71.8	92.97	86.34	73.46	93.7	87.4
Christian	71.64	92.75	86.43	79.14	95.94	89.73
Sikh	80.77	96.06	93.68	89.32	97.15	93.47
Buddhist	75.54	95.33	90.19	72.77	92.45	83.6
Jain	87.92	95.75	94.72	81.15	99.45	97
Other	68.62	85.59	89.08	73.81	93.78	90.1
Region						
Urban	75.93	94.92	88.55	76.38	95.97	89.38
Rural	67.1	92.32	85.71	70.02	93.97	86.54
Total	70.21	93.24	86.71	72.02	94.6	87.43

Table A.4: Summary Statistics for the Four Indicators on Basic Necessities Across Individual and Household Characteristics (in Percentage).

	2015-16				2019-21			
	LPG	Insurance	Mobile	Television	LPG	Insurance	Mobile	Television
Age								
15-19	22.55	14.95	38.64	64.05	32.96	15.74	52.85	40.74
20-24	33.78	15.45	50.49	69.57	45	21.06	59.13	48.41
25-29	41.29	19.94	54.5	71.66	53.49	27.32	63.18	52.6
30-34	45.66	22.28	55.2	72.56	57.72	31.83	63.17	55.08
35-39	45.41	25.37	51.19	70.89	57.81	34.38	58.61	53.3
40-44	48.4	27.54	45.16	71.5	59.76	37.47	51.97	52.56
45-49	47.69	29.47	40.93	70.19	58.82	37.27	45.4	52.86
Husband/partner's education level								
No education	19.78	25.07	27.59	47.77	35.32	33.46	36.37	31.36
Primary	29.11	24.74	34.36	62.86	43.18	33.08	45.03	43.99
Secondary	46.64	20.69	54.62	76.39	58.41	30.37	60.81	56.06
Higher	73.51	23.76	81.34	90.1	78.37	29.92	83.9	72.14
Don't know	18.97	21.12	32.53	53.88	30.34	24.71	50.97	35.42
Caste								
Schedule Caste	32.02	23.4	41.62	68.4	49.78	30.42	51.61	50.34
Schedule Tribe	17.26	24.93	30.61	52.61	30.83	39.33	39.01	35.94
OBC	45.53	23.92	52.06	71.11	58.41	32.38	59.67	53.9
Other	58.14	19.29	62.48	80.92	68.4	26.45	70.26	62.13
Don't know	36.77	14.76	38.02	68.56	34.46	18.48	44.02	35.98
Religion								
Hindu	42.31	23.55	49.73	72	55.06	32.37	57.59	54.16
Muslim	42.51	15.17	51.14	60.98	52.96	24.15	57.19	39.85
Christian	55.94	36.87	66.97	82	65.4	43.17	71.63	63.78
Sikh	57.18	13.15	59.81	90.71	67.3	18.04	63.39	62.29
Buddhist	49.53	16.84	44.62	77.73	68.51	19.41	54.79	53.77
Jain	92.67	22.97	74.81	98.12	93.08	40.58	71.63	83.5
Other	7.41	15.08	29.7	40.55	28.97	29.03	40.65	22.9
Region								
Urban	77.39	22.47	68.01	88.71	86.34	27.55	73.74	69.79
Rural	24.12	22.59	40.83	61.41	41	32.89	50.62	44.61
Total	42.87	22.55	50.4	71.02	55.26	31.21	57.89	52.53

Table A.5. Percentage of Women Belonging to Different Education Levels and Wealth Indexes given their Religion

2015-16									
	Highest Educational Level				Wealth Status				
Religion	no education	primary	secondary	higher	poorest	poorer	middle	richer	richest
Hindu	31.67	13.68	43.46	11.19	17.16	19.44	21.19	20.74	21.47
Muslim	35.46	16.16	42.08	6.3	14.88	18.57	19.14	25.44	21.97
Christian	16.61	12.6	50.32	20.47	8.71	13.11	19.17	29.05	29.97
Sikh	21.77	12.47	53.1	12.67	0.42	3.84	12.18	22.2	61.37
Buddhist	14.69	18.84	56.12	10.35	10.95	21.53	25.01	16.73	25.78
Jain	0.86	8.93	53.99	36.22	0.67	3.86	7.25	24.19	64.03
Other	37.21	15.95	41.83	5.01	43.31	34.81	13.36	4.97	3.56
2019-21									
	Highest Educational Level				Wealth Status				
Religion	no education	primary	secondary	higher	poorest	poorer	middle	richer	richest
Hindu	27.4	13.52	45.4	13.68	19.08	20.62	21.03	20.17	19.1
Muslim	31.42	16.46	45.4	6.72	19.17	21.66	19.2	21.17	18.79
Christian	18.56	11.54	47.5	22.4	14.92	16.25	20.36	24.05	24.42
Sikh	18.61	13.84	52.52	15.03	1.47	4.6	10.98	21.13	61.82
Buddhist	12.55	11.86	64.6	10.99	9.27	20.15	24.93	32.64	13
Jain	0.54	0.7	55.97	42.79	0.26	2.46	12.04	13.03	72.2
Other	39.51	9.51	39.73	11.25	55.41	22.51	6.69	5.3	10.09

Table A.6. Percentage of Women Belonging to Different Education Levels and Wealth Index Given Their Caste

2015-16									
Caste	Highest Educational Level				Wealth Status				
	no education	primary	secondary	higher	poorest	poorer	middle	richer	richest
Schedule caste	39.39	15.56	38.76	6.3	22.7	23.97	23.82	17.17	12.34
Schedule tribe	49.09	14.06	33.01	3.84	40.69	25.71	16.64	11.16	5.8
OBC	32.46	13.98	43.37	10.2	14.27	18.24	21.55	24.59	21.35
None of them	16.84	12.34	52.07	18.75	6.74	13.27	17.7	23.27	39.01
2019-21									
Caste	Highest Educational Level				Wealth Status				
	no education	primary	secondary	higher	poorest	poorer	middle	richer	richest
Schedule caste	33.06	15.58	42.59	8.77	24.59	23.96	22.17	17.07	12.21
Schedule tribe	42.04	15.75	36.91	5.3	45.35	25.28	15.73	8.91	4.72
OBC	27.8	13.16	46.16	12.89	14.53	19.53	22.48	23.58	19.87
None of them	16.2	11.66	50.38	21.76	7.68	14.52	18.12	23.34	36.34

Table A.7. Relative Contribution of Each Dimension for λ=0.5 by States

	2015-16				2019-21			
State	Basic amenities	Freedom of movement	Decision making	No Violence	Basic amenities	Freedom of movement	Decision making	No Violence
Andaman and Nicobar Islands	31.34	43.99	13.95	10.72	25.78	45.91	19.42	8.89
Andhra Pradesh	19.14	41.78	24.35	14.73	15.78	47.41	24.81	12
Arunachal Pradesh	35.29	36.06	14.97	13.68	33.78	37.85	17.57	10.8
Assam	39.99	38.63	13.57	7.82	29.26	47.24	11.9	11.6
Bihar	32.19	35.01	20.8	12.01	32.52	39.54	15.13	12.81
Chandigarh	26.67	39.41	16.7	17.22	39.57	42.48	11.24	6.71
Chhattisgarh	25.49	46.15	15.78	12.58	30.23	49.27	12.21	8.29
Dadra and Nagar Haveli and Daman and Diu	30.57	34.73	23.5	11.19	33.15	25.73	25.13	15.99
Delhi	17.48	42.46	28.84	11.22	22.23	44.38	19.6	13.78
Goa	30.57	44.74	17.03	7.66	13.65	67.71	12.93	5.7
Gujarat	32.35	40.06	19.31	8.29	37.8	39.83	14.9	7.46
Haryana	25.53	40.51	23.37	10.6	31.33	43.55	16.61	8.5
Himachal Pradesh	44.82	23.22	26.97	4.99	48.92	21.05	21.32	8.71
Jammu and Kashmir	37.46	32.89	23.98	5.67	31.33	36.61	26.32	5.74
Jharkhand	41.63	35.56	13.08	9.74	36.58	38.81	12.27	12.34
Karnataka	26.53	45.01	20.74	7.72	19.47	44.87	20.1	15.56
Kerala	21.02	59.39	14.43	5.15	17.11	65.36	13.76	3.77
Lakshadweep	22.26	53.92	21.07	2.75	15.86	75.18	8.29	0.68
Madhya Pradesh	34.68	40.38	16.08	8.85	33.31	41.89	15.02	9.78
Maharashtra	35.69	37.45	17.73	9.14	27.3	44.47	17.35	10.89
Manipur	32.62	41.14	9.69	16.55	26.48	49.99	10.97	12.56
Meghalaya	40.05	34.05	14.57	11.33	32.88	43.2	13.63	10.29
Mizoram	56.53	10.32	18.43	14.73	47.37	35.21	8.87	8.55
Nagaland	41.26	47.13	5.18	6.43	41.43	50.69	2.75	5.13
Odisha	26.49	46.77	17.79	8.95	27.43	50.8	12.89	8.88
Puducherry	23.35	41.04	20.26	15.35	15.2	61.71	12	11.09
Punjab	28.99	43.7	18.16	9.15	33.63	41.71	17.1	7.56

	2015-16				2019-21			
State	Basic amenities	Freedom of movement	Decision making	No Violence	Basic amenities	Freedom of movement	Decision making	No Violence
Rajasthan	33.82	40.18	19	7	21.75	50.77	18.33	9.15
Sikkim	66.94	16.27	14.16	2.63	38.3	29.08	21.19	11.43
Tamil Nadu	25.69	35.59	22.19	16.52	16.41	54.99	16.03	12.57
Telangana	21.22	42.34	22.73	13.71	16.92	45.33	24.26	13.49
Tripura	25.02	43.93	16.41	14.64	37.8	37.21	14.92	10.07
Uttar Pradesh	32.71	40.11	17.33	9.84	29.82	46.16	13.41	10.6
Uttarakhand	42.64	30.22	19.61	7.53	35.04	37.42	18.22	9.32
West Bengal	41.78	29.52	15.34	13.35	40.71	29.78	16.6	12.91
Total	33.42	38.36	18.07	10.16	29.71	43.5	15.7	11.1

Table A.8. Percentage of women belonging to different education levels and wealth index given their state for the year 2015-16

State	Wealth Status					Highest Educational Level			
	poorest	poorer	middle	richer	richest	no education	primary	secondary	higher
Andaman And Nicobar Islands	5.17	10.19	19.25	32.99	32.4	10.21	11.68	66.58	11.54
Andhra Pradesh	2.76	13.21	31.74	33.9	18.4	36.63	16.18	39.36	7.84
Arunachal Pradesh	17.37	27.87	24.9	20.41	9.46	39.5	14.34	41.28	4.89
Assam	21.14	39.01	19.53	13.35	6.97	25.43	15.21	53.58	5.78
Bihar	48.05	24.16	14.86	9.35	3.58	55.33	10.34	29.57	4.76
Chandigarh	0	3.09	5.96	3.56	87.39	12.76	11.31	55.16	20.77
Chhattisgarh	27.66	25.07	16.09	14.4	16.78	35.83	18.45	38.02	7.7
Dadra And Nagar Haveli	16.46	17.42	13.44	26.5	26.19	33.47	9.3	46.47	10.75
Delhi	0.39	2.4	12.07	23.57	61.57	23.92	12.47	42.72	20.89
Goa	0	4.63	10.97	27.23	57.16	10.31	9.17	59.83	20.69
Gujarat	6.41	15.99	21.14	24.27	32.18	26.87	15.23	46.98	10.91
Haryana	1.58	6.02	16.08	25.88	50.43	26.45	13.25	46.17	14.13
Himachal Pradesh	0.85	6.68	22.62	32.89	36.96	10.82	14.36	58.23	16.59
Jammu and Kashmir	6.27	19.62	24.35	23.24	26.52	41.19	7.31	42.8	8.7
Jharkhand	44.02	21.64	13.95	10.04	10.35	43.21	11.08	38.58	7.12
Karnataka	5.07	18.67	26.24	27.62	22.39	23.62	12.89	53.37	10.12
Kerala	0.17	1.55	13.95	33.52	50.81	0.95	5.03	66.13	27.88
Lakshadweep	0	0	6.61	44.94	48.45	2.3	10.69	68.31	18.7
Madhya Pradesh	28.77	21.81	16.15	15.32	17.95	41.6	18.2	33.94	6.26
Maharashtra	7.1	15.07	21.54	26.81	29.48	17.05	14.65	54.85	13.45
Manipur	8.75	28.57	31.33	23.07	8.28	12.39	15.09	58.16	14.36
Meghalaya	12.21	36.75	29.75	15.3	5.99	21.96	25.8	45.6	6.65
Mizoram	5.74	10.36	21.59	32.07	30.24	7.28	19.96	65.01	7.75
Nagaland	10.89	29.42	28.8	21.27	9.62	19.16	14.58	59.3	6.96
Odisha	30.79	27.82	19.56	12.64	9.19	30.5	16.17	46.93	6.4
Puducherry	1.81	8.76	25.12	26.9	37.41	15.64	12.92	54.36	17.07

State	Wealth Status					Highest Educational Level			
	poorest	poorer	middle	richer	richest	no education	primary	secondary	higher
Punjab	0.92	2.5	11.36	22.44	62.78	21.18	12.13	50.22	16.47
Rajasthan	15.48	21.21	20.58	19.73	22.99	47.84	15.52	27.67	8.96
Sikkim	0.71	5.58	38.93	41.85	12.93	18.13	20.64	53.09	8.15
Tamil Nadu	2.48	12.35	27.95	32.35	24.88	16.98	13.57	53.26	16.19
Telangana	4.15	15.8	25.51	30.59	23.95	39.43	8.63	40.78	11.16
Tripura	12.77	40.44	22.27	15.88	8.65	11.9	23.17	56.44	8.49
Uttar Pradesh	26.17	23.19	18.57	15.76	16.31	45.59	12.82	30.89	10.7
Uttarakhand	3.32	15.01	24.37	24.78	32.52	25.14	14.23	42.53	18.11
West Bengal	20.56	30.1	23.15	15.99	10.2	23.51	20.07	50.05	6.37

Table A.9. Percentage of women belonging to different education levels and wealth index given their state for the year 2019-21

State	Wealth Status					Highest Educational Level			
	poorest	poorer	middle	richer	richest	no education	primary	secondary	higher
Andaman and Nicobar Islands	5.93	16.35	26.97	31.93	18.82	6.47	11.81	69.5	12.22
Andhra Pradesh	3.77	17.68	30.45	31.71	16.38	35.22	14.12	42.19	8.48
Arunachal Pradesh	22.04	34.02	26.78	13.88	3.28	32.57	12.5	47.08	7.86
Assam	36.19	32.35	16.1	11.49	3.86	21.39	16.48	55.88	6.25
Bihar	41.91	26.62	15.89	9.72	5.85	47.76	11.92	33.02	7.3
Chandigarh	0	1.41	2.82	14.84	80.92	11.64	18.63	51.9	17.83
Chhattisgarh	28.13	24.25	21.12	14.29	12.22	29.85	17.18	45.19	7.77
Dadra and Nagar Haveli	8.08	24.69	20.23	28.68	18.33	20.76	14.74	49.33	15.17
Delhi	0.25	3.61	9.07	22.76	64.3	18.65	11.78	46.64	22.93
Goa	0	1.72	10.05	28.04	60.2	4.43	7.94	62.43	25.19
Gujarat	9.33	15.72	20.72	25.57	28.66	24.76	14.64	49.29	11.31
Haryana	1.31	7.58	15.03	26.72	49.36	19.8	13.74	49.38	17.08
Himachal Pradesh	2.99	13.99	22.72	29.45	30.84	10.54	11.13	56.03	22.3
Jammu and Kashmir	9.96	16.88	18.92	28.75	25.49	31.1	6.48	51.03	11.39
Jharkhand	43.74	22.54	14.77	10.79	8.15	36.8	10.7	42.54	9.95
Karnataka	6.68	16.42	31.24	27.15	18.51	23.18	11.98	53.08	11.75
Kerala	0.59	3.11	16.42	37.12	42.77	0.84	2.95	63.44	32.78
Lakshadweep	0	3.09	12.19	38.21	46.51	1.45	9.09	72.99	16.47
Madhya Pradesh	29.59	22.29	18.13	14.86	15.12	31.87	18.25	42.02	7.86
Maharashtra	7.81	16.13	22.07	27.2	26.79	13.71	11.84	57.89	16.56
Manipur	12.88	33.36	28.42	19.6	5.73	11.09	10.31	62.27	16.33
Meghalaya	32.7	32.51	19.78	10.4	4.62	16.54	24.76	52.04	6.65
Mizoram	6.29	15.96	25.59	32.09	20.08	7.89	17	64.85	10.26
Nagaland	28.76	26.54	22.06	16.17	6.48	12.25	16.55	63.66	7.54
Odisha	31.96	26.01	20.39	14.26	7.38	24.95	17.47	50.53	7.05
Puducherry	0.56	3.18	10.91	32.27	53.09	5.19	6.59	43.14	45.09
Punjab	0.89	3.48	10.72	22.05	62.86	19.44	12.42	51.32	16.83

State	Wealth Status					Highest Educational Level			
	poorest	poorer	middle	richer	richest	no education	primary	secondary	higher
Rajasthan	12.33	20.5	22.1	22.74	22.34	39.99	15.87	32.68	11.47
Sikkim	2.95	19.43	34.79	29.82	13.01	8.54	19.82	54.98	16.66
Tamil Nadu	2.95	12.78	29.15	30.08	25.04	9.33	13.25	53.79	23.63
Telangana	3.98	15.26	27.42	30.67	22.68	34.2	7.74	44.88	13.19
Tripura	29.84	36.88	23.74	8.52	1.02	11.72	19.78	63.32	5.19
Uttar Pradesh	21.79	25.7	18.81	16.27	17.43	37.14	12.95	35.12	14.79
Uttarakhand	5.7	17.98	21.85	19.48	35	20.07	13.04	45.38	21.51
West Bengal	32.74	28.17	17.9	13.2	7.98	20.81	20.08	50.73	8.38

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