**Original Research Article**

**Explaining Consumption Disparities between Social Groups in Rural India: Analysis with Decomposition Approach**

**ABSTRACT**

**Aims:** Past research revealed that the poverty disparity between social groups, mainly between STs and non-STs, increased significantly in the post-reform periods in rural India. Furthermore, this rise in poverty disparity is largely due to increasing consumption disparity between these social groups. Against this backdrop, this study aims to examine the role of consumption determinants in contributing to the growing consumption disparity between social groups.

**Place and Duration of Study:** This study is limited to the rural areas of India. The NSSO-CES unit-level data from 1987-88 to 2011-12 have been used for this study.

**Methodology:** It employs pooled regression analysis to assess the influence of various determinants on household consumption. Additionally, it uses decomposition analysis to identify the roles of characteristic effects and coefficient effects in the consumption disparity between social groups.

**Result:** The study reveals that the gap in consumption between SC and non-SC/ST has substantially decreased but remains significant. The disparity between SCs and non-SC/STs is primarily due to differences in endowments. However, the disparity in consumption between STs and non-STs has increased considerably, largely attributable to regional disparities.

**Conclusion:** Historically, the STs were delinked from mainstream development. Their traditional potential, their resources have not been used for their development. Their regions are generally considered bargain regions. These regions are still in the darkness of underdevelopment. This study reveals that the differential in consumption expenditure could have been eliminated by developing the ST-populated regions.

*Keywords: Consumption, Social Groups, Decomposition, Characteristic effect, Coefficient effect*

**1. INTRODUCTION**

The failure of the endowment is one of the main reasons for poverty. Endowment can be seen as ownership of natural capital, human capital, and physical capital. Natural capital includes land, water, biodiversity, etc., while human capital consists of knowledge, education, skills, etc. Ownership of productive equipment, physical assets, and access to credit can be considered physical capital. The primary goal of affirmative measures is to close the endowment gap between socially marginalised and socially advantaged groups. Eliminating this gap should help reduce poverty disparities between these groups. However, several studies have shown that SCs and STs are more impoverished compared to non-SC/ST, as they possess fewer of these endowments despite decades of affirmative measures (Kijima, 2006; Mukherjee & Majumder, 2011). Additionally, these disadvantaged social groups still face discrimination in various forms (Thorat & Newman, 2007). On the other hand, recent studies suggest that social groups are becoming more similar in terms of employment, wages, and well-being (Hnatkovska et al., 2012, 2013; Panagariya & Mukim, 2014). Education plays a vital role in reducing disparities between social groups by improving human capital, which is a key part of endowment. Providing access to quality education and skill development enables marginalized groups to improve their employment chances and economic status. This, in turn, helps lessen poverty gaps, as education empowers individuals to participate more actively in the labor market and access better opportunities.

It is observed that poverty disparity between social groups is increasing over the years, especially after the reform period. Further, it was found that differentials in growth rate of consumption expenditure between the social groups are responsible for increasing poverty disparities between the social groups at the national level and among most of the states (Mondal & Das, 2021, 2023). This study examines the role of endowment failure in explaining the increasing differential disparity in consumption between the vulnerable and the non-vulnerable groups of people in rural India.

Several studies have examined the differences in well-being among social groups in India (Kijima, 2006; Mukherjee & Majumder, 2011; Mutatkar, 2005). These studies mainly explore the reasons behind the lower living standards of socially marginalised groups compared to non-marginalised groups. A significant number of studies, using cross-sectional analysis, identify the prevalence of lower endowments among SCs and STs compared to upper castes and attribute the lower returns on these endowments to earning disparities between them (Mutatkar, 2005). However, cross-sectional analysis using OLS does not address the issues of unobserved heterogeneity and endogeneity. Moreover, these studies cannot capture changes in characteristics and coefficient differences over time. Conversely, Kijima (2006) and Mukherjee and Majumder (2011) account for these changes by employing cross-sectional regression analysis that considers variations in characteristics and coefficients over time.

Against this backdrop, this study revisits the issue by examining the role of the endowment effect in the disparity in consumption among different social groups, using pooled data from various quinquennial rounds of NSSO-CES data from 1987 to 2011-12 and employing the Oaxaca-Blinder Decomposition Analysis. Pooled regression yields more reliable results compared to cross-sectional regression and can capture the effects of time, characteristics, and coefficients of different social groups on MPCE. The empirical results reveal that returns on endowments such as education, landholding, etc., are decreasing faster among STs compared to non-STs. Similar to cross-sectional OLS, the endogeneity problem also affects pooled regression. Estimates are biased because of unobserved heterogeneity in this regression. However, relative to cross-sectional OLS, biases are somewhat lower in pooled regression models (Das, 2019).

The rest of the study is organised as follows. Section 2 assesses the disparities in consumption and endowment among social groups. Section 3 discusses regression models. Section 4 analyses the results. Finally, Section 5 summarises and concludes the study.

**2. CONSUMPTION AND ENDOWMENT DISPARITIES**

Sen (1983) pointed out that poverty is a result of failures in endowment, production, exchange, and consumption (Sen, 1983). These failures interact with each other, creating a cycle of failures. This cycle forces households to be trapped in poverty. Lack of endowment, such as land or physical and human capital, pushes households into deeper poverty. It also contributes to failures in other areas like production and consumption. Conversely, if there is no failure in endowment, production can still push households into poverty and may also lead to failures in exchange and consumption. Therefore, failure in one area can reinforce failures in others. Currently, SCs and STs, being socially and geographically deprived, face failures across all dimensions—endowment, production, exchange, and consumption. In rural India, land is a crucial endowment. SCs possess less land compared to non-SCs, with higher rates of landlessness. Conversely, STs have higher per capita land holdings than SCs, but most of their land is less fertile, often forest or common land, and lacks irrigation. Additionally, STs have experienced significant displacement due to the installation of various development projects. As a result, both groups faced endowment failure before independence, due to a Brahmanical-cum-patriarchal society that widened social inequality. Since independence, various measures have been taken to address failures in different dimensions, especially among SCs and STs. However, structural issues and poor policy implementation by both government and non-government entities continue to deepen inequality.

**2.1 Household characteristics**

The consumption expenditure of households has been measured using the real MPCE of the households at 2004-05 prices. Table 1 shows that the mean consumption increased across all social groups over time. Non-SC/ST households consistently have the highest consumption in all years. SCs have higher consumption than STs in every year. Consumption growth was modest between 1987 and 2004, but accelerated after 2004 for all groups, especially SCs and non-SC/STs. However, the rate of increase was higher among non-SC/ST, followed by SCs. The lowest growth rate was among STs. Consequently, over time, disparities in consumption between social groups, measured as the log difference of mean MPCE, increased significantly. These disparities grew faster between ST and non-ST, indicating a clear divergence in rural India. Estimates show that consumption disparities between ST and non-SC/ST increased significantly from 1993-94 to 2004-05 but remained stagnant from 2004-05 to 2011-12. Disparities between SC and ST also rose significantly during this period.

**Table 1: Household Size and Consumption among Social Groups over Time**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mean |  | 1987-88 | 1993-94 | 2004-05 | 2011-12 |
| Consumption | ST | 774.5 | 807.9 | 810.5 | 1002.5 |
| SC | 827.4 | 826.4 | 915.3 | 1165.5 |
| Non-SC/ST | 1039.7 | 1039.3 | 1172.9 | 1441.5 |
| Disparity in Consumption | non-SC/ST & ST | 0.13 | 0.11 | 0.16 | 0.16 |
| non-SC/ST & SC | 0.10 | 0.10 | 0.11 | 0.09 |
| SC & ST | 0.03 | 0.01 | 0.05 | 0.07 |
| Household Size | ST | 4.87 | 4.73 | 4.72 | 4.50 |
| SC | 4.77 | 4.66 | 4.77 | 4.51 |
| Non-SC/ST | 5.22 | 5.02 | 4.95 | 4.65 |

Source: Author’s calculation from several quinquennial surveys of NSS-CES data

Household size declines across all groups over time, consistent with demographic trends. Non-SC/ST households consistently have larger households, but the gap narrows over time. By 2011-12, household size becomes nearly equal across groups (~4.5), possibly reflecting fertility transitions. Despite economic growth and policy efforts, ST households consistently lag behind in both absolute and relative terms. SC households show improvement and are beginning to close the gap with non-SC/STs, while also pulling ahead of STs. The table reveals that although mean consumption has risen for all groups over time, inter-group disparities remain significant and even widen in some cases. ST households, in particular, show slower improvements, which is a cause for policy concern. Understanding the sources of these disparities—be they endowment gaps (land, education) or return differentials—is crucial for inclusive development.

**Table 2: Changes in Education Attainment among Social Groups**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | 1987-88 | 1993-94 | 2004-05 | 2011-12 |
| Illiterate | ST | 0.72 | 0.68 | 0.58 | 0.47 |
|  | SC | 0.70 | 0.67 | 0.56 | 0.49 |
|  | Non-SC/ST | 0.51 | 0.48 | 0.40 | 0.35 |
| Below Primary | ST | 0.13 | 0.14 | 0.13 | 0.15 |
|  | SC | 0.12 | 0.13 | 0.10 | 0.13 |
|  | Non-SC/ST | 0.17 | 0.16 | 0.11 | 0.14 |
| Primary | ST | 0.09 | 0.09 | 0.13 | 0.14 |
|  | SC | 0.09 | 0.09 | 0.13 | 0.14 |
|  | Non-SC/ST | 0.15 | 0.13 | 0.16 | 0.13 |
| Middle | ST | 0.04 | 0.06 | 0.10 | 0.12 |
|  | SC | 0.05 | 0.06 | 0.12 | 0.13 |
|  | Non-SC/ST | 0.09 | 0.11 | 0.16 | 0.16 |
| Secondary | ST | 0.02 | 0.03 | 0.03 | 0.06 |
|  | SC | 0.03 | 0.03 | 0.05 | 0.07 |
|  | Non-SC/ST | 0.07 | 0.06 | 0.09 | 0.12 |
| HS & above | ST | 0.01 | 0.02 | 0.04 | 0.06 |
|  | SC | 0.01 | 0.02 | 0.04 | 0.05 |
|  | Non-SC/ST | 0.02 | 0.05 | 0.08 | 0.11 |

Source: Author’s calculation from several quinquennial surveys of NSS-CES data

Earlier studies found that educational attainment improved among all social groups over time in India (Kijima, 2006). Table 2 shows that illiteracy has decreased across all social groups, with the sharpest decline among STs. However, by 2011-12, illiteracy levels among ST and SC populations remained significantly higher than those for Non-SC/ST groups. The gap in illiteracy between ST and non-SC/ST groups narrowed slightly (from 21% to 12%). Conversely, the proportion of the population with less than primary education remained relatively stable. This suggests that some progress beyond illiteracy is still stagnating below the primary level for a large segment. ST and SC populations show modest improvements, while Non-SC/ST populations show a slight decline, possibly due to movement to higher education levels. Participation of SC and ST populations in middle education nearly tripled over the period. However, participation at the secondary level remains low, especially for SC/ST groups.

Table 2 shows that participation in higher education has increased. However, non-SC/STs have surpassed SC/STs. By 2011-12, non-SC/STs are nearly twice as likely as SC/STs to have completed education at the high school level or higher. Progress is evident among all social groups, especially in reducing illiteracy and promoting middle-level education. Nonetheless, educational attainment remains unequal: ST and SC groups still face barriers in gaining access to secondary and higher education, which are essential for obtaining formal employment and escaping poverty. The stagnation in

**Table 3 Land Particulars among Social Groups Over Time**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | 1987-88 | 1993-94 | 2004-05 | 2011-12 |
| Per-capita land owned | ST | 0.258 | 0.254 | 0.583 | 0.164 |
|  | SC | 0.104 | 0.100 | 0.076 | 0.079 |
|  | Non-SC/ST | 0.275 | 0.243 | 0.198 | 0.171 |
| Per-capita Land Possessed Informal |  |  |  |  |  |
|  | ST | 0.009 | 0.007 | 0.008 | 0.003 |
|  | SC | 0.002 | 0.001 | 0.001 | 0.001 |
|  | Non-SC/ST | 0.002 | 0.002 | 0.001 | 0.001 |
| Per-capita Land Possessed |  |  |  |  |  |
|  | ST | 0.271 | 0.262 | 0.594 | 0.169 |
|  | SC | 0.113 | 0.106 | 0.080 | 0.084 |
|  | Non-SC/ST | 0.276 | 0.242 | 0.199 | 0.173 |
| Per-capita Land Cultivated |  |  |  |  |  |
|  | ST | 0.237 | 0.232 | 0.180 | 0.150 |
|  | SC | 0.097 | 0.094 | 0.069 | 0.074 |
|  | Non-SC/ST | 0.247 | 0.223 | 0.172 | 0.157 |
| Per-capita Land Irrigated |  |  |  |  |  |
|  | ST | 0.049 | 0.035 | 0.037 | 0.051 |
|  | SC | 0.065 | 0.036 | 0.032 | 0.041 |
|  | Non-SC/ST | 0.115 | 0.105 | 0.088 | 0.095 |

Source: Author’s calculation from several quinquennial survey of NSS-CES data

Landlessness increased notably in rural India. Per capita land cultivated decreased significantly across all social groups. Rising population pressure and the conversion of cultivable land to non-agricultural uses are key factors behind this trend. The proportion of landless and marginal cultivators grew considerably among all groups. The share of landless is higher among SCs compared to STs and Others. STs experienced a large spike in 2004–05, possibly due to recording errors, land reform efforts, or forestland return, followed by a sharp decline in 2011–12. SCs consistently show very low land ownership, with no signs of recovery. Non-SC/STs exhibit a steady decline, indicating land fragmentation or sales. STs tend to possess more land informally, likely due to customary claims or forestland occupation. Informal possession is minimal for SCs and non-SC/STs. The decline in ST land holdings in 2011–12 suggests formalisation, evictions, or loss of customary rights. Trends mirror those in land ownership. STs peaked in 2004–05 before falling below non-SC/STs. SCs remain at the bottom, highlighting landlessness and historical deprivation. Non-SC/STs show a gradual decline, reflecting land subdivision or conversion to non-farm uses. Cultivated land decreases across all groups, indicating agricultural distress, fallow land, or land-use changes. By 2011–12, STs and non-SC/STs had similar levels of cultivated land. SCs remain consistently disadvantaged, indicating limited engagement in own-farm agriculture. Access to irrigation is lowest among STs and SCs, though SCs show some improvement. Non-SC/STs consistently have better irrigation, a key factor for productivity and resilience. STs slightly surpass SCs in 2011–12, possibly due to development schemes in tribal areas. SCs continue to be systematically excluded from land ownership and cultivation, a legacy of caste-based oppression. STs show irregular land trends likely due to forest rights, shifting cultivation, land alienation, and policy interventions like the Forest Rights Act (2006). The 2004–05 spike in ST land could reflect temporary recognition or measurement of customary lands. All groups face land fragmentation and reduced cultivation, possibly because of urban expansion, declining tenancy, or distress sales. Non-SC/STs are better integrated into capital-intensive agriculture, while SCs and STs remain reliant on rain-fed or marginal farming. This table highlights the persistent structural inequalities in land access across caste and tribal lines. While land ownership has decreased for all, SCs and STs continue to have limited possession, cultivation, and irrigation access, directly impacting their economic well-being and food security. The statistics show that non-SC/STs are better endowed with land characteristics, followed by STs, whereas SCs have significantly lower land endowments compared to non-SCs. The proportion of agriculturists is higher among STs relative to non-STs. Therefore, land endowment per agriculturist is significantly lower among STs compared to non-SC/STs.

**Table 4: Change in Occupational Structure among Social Groups**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | 1987-88 | 1993-94 | 2004-05 | 2011-12 |
| SENA | ST | 0.06 | 0.06 | 0.07 | 0.08 |
|  | SC | 0.11 | 0.11 | 0.14 | 0.14 |
|  | Non-SC/ST | 0.14 | 0.14 | 0.18 | 0.18 |
| Agricultural Labourer | ST | 0.38 | 0.39 | 0.35 | 0.26 |
|  | SC | 0.52 | 0.52 | 0.43 | 0.33 |
|  | Non-SC/ST | 0.23 | 0.23 | 0.21 | 0.17 |
| Other Labourer | ST | 0.12 | 0.10 | 0.11 | 0.14 |
|  | SC | 0.12 | 0.11 | 0.15 | 0.21 |
|  | Non-SC/ST | 0.08 | 0.07 | 0.09 | 0.11 |
| SEA | ST | 0.38 | 0.38 | 0.38 | 0.39 |
|  | SC | 0.19 | 0.20 | 0.19 | 0.20 |
|  | Non-SC/ST | 0.44 | 0.44 | 0.40 | 0.38 |
| Other | ST | 0.07 | 0.06 | 0.09 | 0.12 |
|  | SC | 0.07 | 0.07 | 0.09 | 0.12 |
|  | Non-SC/ST | 0.12 | 0.11 | 0.12 | 0.16 |

Source: Author’s calculation from several quinquennial survey of NSS-CES data

As stated earlier, higher levels of education have encouraged the labor force to engage in more skilled occupations. At the macro level, development is associated with a reduced proportion of workers in the traditional sector, often referred to as the agricultural sector. To some extent, this is also true at the micro level, particularly in rural India. Studies have revealed that off-farm employment provides higher income to workers (Lanjouw & Shariff, 2004). Increasing landlessness has forced farmers to work as agricultural laborers or engage in elementary occupations, which are often considered zero-skilled, since their agricultural skills are not applicable in other jobs. Therefore, the shift from agriculture to non-agriculture is not always intentional or a sign of development; in many cases, it is driven by necessity due to landlessness. Statistics show that the proportion of agriculturists is significantly higher among ST and other groups compared to SC. Over time, this proportion has decreased for all social groups during the period of analysis, with the smallest decrease among STs, followed by SCs. Interestingly, the proportion of agriculturists increased among STs from 1999-00 to 2011-12. The proportion of the workforce engaged in elementary occupations is also an indicator of underdevelopment, being highest among SCs, followed by STs. This proportion has decreased across all social groups, mainly during 1999-00 to 2011-12, with a more significant decline among STs and SCs compared to non-SC/ST groups. Summing these two proportions across social groups, it appears that STs have the highest engagement in agriculture or elementary occupations, followed by SCs, with the hierarchy remaining consistent over time. Overall, this proportion has declined for all groups, but more so among non-SC/STs, thereby increasing disparities between tribes and non-tribes. Casualisation of the labor force is an important phenomenon of recent decades. The proportion of casual laborers rose sharply for all social groups during the reform era. Recently, there has been a decrease in casual labor, mainly among STs, which is primarily due to an increase in self-employment.

Thus, the STs maintain strong ties to their own farming (SEA), but shift some share to casual labour. There is slow diversification into non-farm sectors. Increasing participation in "Other" and SENA points to modest progress in non-agricultural integration. For SCs, there is a sharp decline in agricultural labour accompanied by a rise in casual non-agricultural employment. This shift likely reflects distress-driven urban migration rather than structural transformation. They still have the lowest levels in SEA and SENA—indicating continued landlessness and occupational vulnerability. In contrast, non-SC/ST groups have a more balanced occupational structure. They have the highest shares in self-employment (both agricultural and non-agricultural) and salaried jobs, reflecting better access to capital, land, and education. This table highlights the slow structural transformation of the rural workforce, with all groups gradually shifting away from agricultural labour towards non-agricultural work, but in very unequal ways. SCs and STs are increasingly absorbed into the low-wage, casual labour market, while non-SC/STs maintain dominance in productive self-employment and salaried jobs. These patterns underline the persistence of caste-based occupational inequality, even as the broader economy diversifies. Educational attainment among social groups reveals that despite progress, educational inequality deepens at higher levels, limiting social mobility for SCs and STs. Land characteristics show that land inequality remains entrenched, and landlessness continues to bind SCs and STs to low-return livelihoods. Occupational status indicates that there is no equitable transformation of the occupational structure. Marginalised groups are still concentrated in insecure, low-return work. Despite notable gains in education and a shift away from agriculture, the data across these four domains shows that STs and SCs continue to face structural disadvantages in ownership, returns to education, access to quality employment, and overall welfare. This suggests that inequality in endowments and opportunities remains deeply embedded in India's social and economic fabric, reinforcing caste- and tribe-based hierarchies.

**3. METHODOLOGY AND DATA**

This study examines the impact of endowments such as educational attainment, landholding, and occupation status on household welfare across social groups. To identify possible differences in endowments between social groups, we allow the returns to endowments to vary across groups by using coefficient dummies. The coefficients of interaction dummies indicate differences in returns to endowments among social groups. MPCE of households is considered a function of both household-level endowments and region-level structures. To control for unobserved region-based heterogeneity, we include regional dummies.

Two separate pooled regressions have been conducted to analyze the changing dynamics of the coefficient and endowment effect among social groups over time. Unlike fixed-effects models in panel regression, pooled regressions face issues of endogeneity and may produce biased estimates due to unobserved heterogeneity, though these biases are smaller compared to cross-sectional OLS. First, a pooled regression models the log of household MPCE based on household characteristics—such as landholding, educational attainment, and occupational choices—along with social group and regional dummies for each time period. Conversely, the second set of regressions performs a similar analysis but considers time and regional dummies separately for each social group.

**3.1 Model with Social Group Dummies**

In this regression (Equation 1), we regress log MPCE on household endowments with social group dummies to capture differences in how endowments affect household living standards. Since occupation choices also influence household living standards, we include occupational dummies in the model. Additionally, the interaction between social groups and occupation dummies is incorporated to account for variations in living standards within the same occupation across different social groups.

stands for unobserved error

are regional dummies

comprises independent variables, social group dummies, slope dummies and interaction dummies of social groups and household types.

This regression function has been drawn for four separate periods namely, 1987-88, 1993-94, 2004-05 and 2011-12.

**3.2 Model with Time Dummies**

Here, regression (Equation 2) has been performed by considering log MPCE as the dependent variable and household endowment as independent variables, with time dummies to capture the differential impact of those endowments on the living standards of various social groups over time. Additionally, we introduced slope dummies for time and interaction dummies for time and household type.

stands for unobserved error

are regional dummies

comprises independent variables, time dummies, slope dummies and interaction dummies of time and household type.

This regression function has been drawn for three separate social groups, namely, SC, ST and non-SC/ST.

**3.3 Characteristic Effect and Coefficient Effect**

As mentioned earlier, sources of disparity in wellbeing between social groups stem from differences in endowment, referred to as the characteristics effect, and differences in the return on those endowments, called the coefficient effect. The former arises when one group has less endowment than another on average. The latter occurs when endowments are less effective for one group compared to another. The coefficient effect is commonly known as the coefficient of discrimination. People often confuse differences in the return to endowment with differential or unequal treatment between social groups. The return on endowment may differ due to the quality of the endowment. For example, differences in land fertility, education quality, etc., between SC/ST and non-SC/ST groups, can lead to differences in the return on land and education. These differences in the coefficient are not necessarily due to discrimination. Conversely, the characteristics effect, which is often considered unrelated to discrimination, may actually be linked to discrimination if socially marginalized groups are endowed with lower levels of resources—such as land, education, etc.—as a result of historical discrimination that denied their fundamental rights to landholding and education. The above illustration shows that the coefficient effect is not an indicator of discrimination. Therefore, through this decomposition, we are not attempting to estimate discrimination but simply aim to decompose the wellbeing gap into characteristics and coefficient effects (Duncan, 1979; Oaxaca, 1973). This approach was originally applied to male-female and racial wage differentials by Oaxaca (1973) and Corcoran and Duncun (1979).

where is a vector of household characteristics of jth group of households, are the parameter estimates, and is the error term with a mean of zero. Since the regression lines pass through the means of the variables, the predicted mean expenditure differentials between the two groups are decomposed as

The above equation is true provided and . It can be decomposed in the following manner:

Here, the differential in consumption has been decomposed into three-fold decomposition. presents the endowment effect of consumption differences between the two groups. This amounts to the part of differential consumption that arises due to differential in the predictors. It arises as one group comprises less endowment relative to the other on average. It is also referred to as the characteristic effect of consumption differential. reveals the decomposition effect of consumption differential. It amounts to the part of differential in consumption that arises due to differential in return of the endowments as the endowments are less effective to one group relative to another. The third part i.e., amounts to the part of differential consumption that arises due interaction between endowment and coefficient effect.

Alternative to the above three-fold decomposition, there exists a two-fold decomposition of consumption differential between groups. Equation 4 can be restated as follows:

Here, a non-discriminatory coefficient vector is presented. The first part, the summed differential in consumption, arises from differences in endowments. It is called the quantity effect or the explanatory part. The explained part differs from the endowment effect or characteristic effect because the former is multiplied by a non-discriminatory coefficient vector, while the latter is multiplied by the coefficient vector of either group. The second part of equation 6 shows an unexplained differential in consumption between groups. It is often considered the source of discrimination. However, in reality, the unexplained part includes all potential effects of differences in uncontrolled endowments between groups. The unexplained part could be interpreted as measures of discrimination if all relevant predictors had been controlled in the model. This study cannot ensure that all relevant predictors have been included. Furthermore, the quantity effect, previously regarded as non-discriminatory, could reflect the historical discrimination faced by SCs and STs. For example, STs and SCs were historically denied access to education. As a consequence, the educational endowment among socially marginalized groups is much lower compared to non-SC/ST groups. The impact of this educational disparity on the differential in mean well-being between groups is captured under the quantity effect. Therefore, neither the quantity effect nor the unexplained part definitively represents the source of discrimination. The differential in mean well-being between groups has been captured under the quantity effect. Thus, neither the quantity effect nor the unexplained part represents the source of discrimination.

Two distinct models have been employed to decompose the well-being differential between social groups into the explained part and the unexplained part. The MPCE of households has been used as the indicator of well-being for the households. Thus, the MPCE of the households has been considered a predicted variable in both models. Model 1 uses household size, land particulars per capita, educational attainment, etc., as predictors. Model 2 incorporates regional dummies. Consequently, the differential in mean consumption between groups arising from regional disparities is captured by comparing these two models.

**3.4 Data**

The household-level data used in this study come from the 43rd, 50th, 61st, and 68th rounds of the quinquennial surveys on ‘Consumption Expenditure Survey’ conducted by the NSSO for the years 1987-88, 1993-94, 2004-05, and 2011-12, respectively. These surveys are cross-sectional and involve a geographically distributed random sample of households. The survey period is one year for most of the quinquennial surveys, generally extending from July to June. Each survey covered nearly 1.2 lakh households in both rural and urban areas of India. Our study is limited to rural areas only. Additionally, union territories have been excluded from our analysis.

**4. EMPIRICAL RESULT**

**4.1 Determinants of Consumption**

This regression analysis examines the determinants of the log of household consumption, measured using MPCE, across four time periods: 1987–88, 1993–94, 2004–05, and 2011–12. It focuses on changing returns to land, education, occupation, and social group identity, including their interactions. Clearly, consumption varies with household characteristics. Households endowed with higher assets such as land, education, and better occupations tend to have higher consumption expenditure. Therefore, variation in MPCE can be explained by differences in endowments and the returns to those endowments. In this section, an attempt has been made to capture the changing rates of return to endowments across social groups over time.

**Table 5: Changing Returns to Determinants on Consumption with Social Group Dummies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Log MPCE | 1987-88 | 1993-94 | 2004-05 | 2011-12 |
| Size of Household | -0.0423\*\*\* | -0.0423\*\*\* | -0.0412\*\*\* | -0.0520\*\*\* |
| Per-capita land possessed | 0.0860\*\*\* | 0.0385\*\* | 0.00107 | 0.0985\*\*\* |
| Per-capita land irrigated | 0.0497\*\* | 0.115\*\*\* | 0.286\*\*\* | 0.110\*\*\* |
| ST | -0.112\*\*\* | -0.0889\*\*\* | -0.120\*\*\* | -0.162\*\*\* |
| SC | -0.0537\*\*\* | -0.0521\*\*\* | -0.0491\*\*\* | -0.0676\*\*\* |
| PC land possessed\*ST | 0.00721 | -0.0164 | -0.00128 | 0.0707\* |
| PC land possessed\*SC | 0.0784\*\*\* | 0.0369 | 0.0502\* | 0.0229 |
| PC land irrigated\*ST | -0.013 | 0.224\*\*\* | 0.0715 | 0.0304 |
| PC land irrigated\*SC | -0.0428\*\* | 0.054 | 0.209\*\*\* | 0.081 |
| Literate below primary | 0.106\*\*\* | 0.111\*\*\* | 0.0673\*\*\* | 0.0541\*\*\* |
| Primary | 0.164\*\*\* | 0.145\*\*\* | 0.107\*\*\* | 0.0917\*\*\* |
| Middle | 0.252\*\*\* | 0.215\*\*\* | 0.176\*\*\* | 0.153\*\*\* |
| Secondary | 0.389\*\*\* | 0.328\*\*\* | 0.274\*\*\* | 0.230\*\*\* |
| HS and above | 0.580\*\*\* | 0.473\*\*\* | 0.446\*\*\* | 0.392\*\*\* |
| Middle\*ST | -0.0391\* | -0.0335\* | 0.00543 | -0.0102 |
| Middle\*SC | -0.0867\*\*\* | -0.0574\*\*\* | -0.0506\*\*\* | -0.0143 |
| SENA | 0.247\*\*\* | 0.232\*\*\* | 0.225\*\*\* | 0.205\*\*\* |
| Other labour | 0.112\*\*\* | 0.0663\*\*\* | 0.0815\*\*\* | 0.0431\*\*\* |
| SEA | 0.287\*\*\* | 0.281\*\*\* | 0.268\*\*\* | 0.244\*\*\* |
| Other | 0.313\*\*\* | 0.313\*\*\* | 0.330\*\*\* | 0.293\*\*\* |
| SENA\*ST | 0.00308 | -0.027 | 0.0135 | 0.0703\*\*\* |
| SENA\*SC | -0.0659\*\*\* | -0.0531\*\*\* | -0.0743\*\*\* | -0.0490\*\* |
| SEA\*ST | -0.140\*\*\* | -0.128\*\*\* | -0.0888\*\*\* | -0.0952\*\*\* |
| SEA\*SC | -0.0920\*\*\* | -0.0728\*\*\* | -0.0935\*\*\* | -0.0600\*\* |
| Other\*ST | -0.0406 | -0.0332 | -0.0740\*\*\* | 0.0527\* |
| Other\*SC | -0.0965\*\*\* | -0.0464\* | -0.0712\*\*\* | -0.0325 |
| \_cons | 6.776\*\*\* | 6.747\*\*\* | 6.954\*\*\* | 7.245\*\*\* |

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Source: Author’s calculation from several quinquennial surveys of NSS-CES data

Table 5 reveals that household size has a significant negative coefficient. Thus, larger households are associated with a lower living standard. Furthermore, the increasing magnitude of the household size coefficient over time indicates that adding household members becomes more expensive for households. Controlling for the mentioned independent variables, estimates show that the living standard was 16.7% lower among STs compared to non-SC/ST in 1993-94. Among SCs, it was 12.9% lower relative to non-SC/ST for the same period. Therefore, a gap in living standards existed in 1993-94 when these variables were controlled, and this gap widened in 2011-12. The living standard was 20% and 14.3% lower among STs and SCs respectively, compared to non-SC/ST.

The estimates of land characteristics show that the return to per-capita land cultivated on log MPCE increased significantly from 1993-94 to 2011-12 across all social groups. It increased more among SCs and STs. The return to land was 8.8 per cent and 8.4 per cent higher among STs and SCs, respectively in 2011-12. In 1993-94, it was 2.5 per cent for STs and 7.7 per cent for SCs. However, it is noteworthy that the return to land among STs and non-SC/ST was nearly the same in 2004-05, while the return to land was almost 12 per cent higher among SCs compared to non-SCs. Estimates on education show that the return is higher for secondary education compared to primary and middle education for non-SC/ST groups. No evidence has been found to reject the hypothesis that ST and non-ST groups have different returns to education. The return to primary education was 3 percent lower for SCs compared to non-SC/ST in 1993-94 and 6 percent lower in 2004-05. Table 6 reveals that household size is negatively related to the predicted living standards across social groups. However, the magnitude of the return to household size, when specified with regional dummies, is least among non-SC/ST groups, followed by ST groups, and highest among SCs. This indicates that larger household sizes reduce the predicted living standard more among SCs, then STs. The return to per-capita land cultivation is higher among ST households compared to non-SC/ST households. Estimates show that the return to cultivated land increased significantly across all social groups from 1983 to 2011-12. Land is considered the most important physical asset in rural India, where a significant proportion of the population depends on agriculture for their livelihood, either directly or indirectly.

**Table 6: Changing Returns to Determinants on Consumption among Social Groups**

|  |  |  |  |
| --- | --- | --- | --- |
| Log MPCE | ST | SC | Non-SC/ST |
| Size of Household | -0.0531\*\*\* | -0.0539\*\*\* | -0.0408\*\*\* |
| Per-capita land possessed | 0.147\*\*\* | 0.109\*\* | 0.117\*\*\* |
| Per-capita land irrigated | 0.187\*\*\* | 0.208\*\* | 0.0898\*\*\* |
| 1987-88 | -0.240\*\*\* | -0.315\*\*\* | -0.338\*\*\* |
| 1993-94 | -0.178\*\*\* | -0.298\*\*\* | -0.314\*\*\* |
| 2004-05 | -0.162\*\*\* | -0.214\*\*\* | -0.228\*\*\* |
| Per-capita land irrigated \*1987-88 | -0.148\*\*\* | -0.201\*\* | -0.0385 |
| Per-capita land irrigated \*1993-94 | 0.161\* | -0.0199 | 0.0259 |
| Per-capita land irrigated \*2004-05 | 0.182\*\* | 0.299\*\* | 0.178\*\*\* |
| Literate below primary | 0.0444\*\*\* | 0.0582\*\*\* | 0.0630\*\*\* |
| Primary | 0.0337\*\* | 0.0592\*\*\* | 0.0951\*\*\* |
| Middle | 0.0889\*\*\* | 0.136\*\*\* | 0.158\*\*\* |
| Secondary | 0.176\*\*\* | 0.231\*\*\* | 0.237\*\*\* |
| HS and above | 0.297\*\*\* | 0.389\*\*\* | 0.392\*\*\* |
| Middle \*1987-88 | 0.133\*\*\* | 0.0172 | 0.0862\*\*\* |
| Middle \*1993-94 | 0.0681\*\*\* | 0.0191 | 0.0556\*\*\* |
| Middle \*2004-05 | 0.0763\*\*\* | -0.00403 | 0.0302\*\*\* |
| SENA | 0.231\*\*\* | 0.133\*\*\* | 0.184\*\*\* |
| Other labour | 0.0684\*\*\* | 0.0155 | 0.0314\*\* |
| SEA | 0.106\*\*\* | 0.155\*\*\* | 0.210\*\*\* |
| Other | 0.301\*\*\* | 0.254\*\*\* | 0.283\*\*\* |
| SENA \*1987-88 | 0.0104 | 0.0681\*\*\* | 0.0774\*\*\* |
| SENA \*1993-94 | -0.0447 | 0.0525\*\* | 0.0499\*\*\* |
| SENA \*2004-05 | -0.014 | 0.00368 | 0.0334\*\* |
| Other labour \*1987-88 | -0.0263 | 0.0808\*\*\* | 0.0868\*\*\* |
| Other labour \*1993-94 | 0.0108 | 0.0635\*\*\* | 0.0249 |
| Other labour \*2004-05 | 0.00882 | 0.0383\* | 0.0541\*\*\* |
| SEA\*1987-88 | 0.0447\* | 0.0730\*\*\* | 0.103\*\*\* |
| SEA \*1993-94 | 0.0241 | 0.0537\* | 0.0725\*\*\* |
| SEA \*2004-05 | 0.0530\*\* | 0.00754 | 0.0475\*\*\* |
| Other \*1987-88 | -0.0236 | -0.0302 | 0.0504\*\*\* |
| Other \*1993-94 | -0.0491 | 0.00903 | 0.0325\* |
| Other \*2004-05 | -0.0662\*\* | -0.00861 | 0.0422\*\*\* |
| Cons | 6.757\*\*\* | 7.119\*\*\* | 7.157\*\*\* |

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Source: Author’s calculation from several quinquennial surveys of NSS-CES data

The estimates suggest that the return to land increased at a higher rate among SCs during the period compared to STs and non-SC/ST groups. Kijima (2006) suggests that higher returns to land holding among SCs may be because SC households tend to intensify family labor on their own land. Additionally, the proportion of households engaged as Self Employed in Agriculture (SEA) did not decline among SCs. In contrast, it decreased significantly among non-SC/ST groups from 44 percent to 40 percent between 1983 and 2011-12. Among the STs, the return to land is considerably higher than that of non-SC/ST groups. However, dynamics changed over time. The return to land increased for both STs and non-SC/ST, but at a faster rate among non-SC/ST groups. Furthermore, STs had the highest proportion of SEA relative to other social groups. Incidentally, this share increased among STs over time. When combining SEA with agricultural labor, nearly 70 percent of ST households directly depend on agriculture. However, STs are the least effective in increasing their return to land over time, and the land per capita cultivated area among STs decreased the most over the period. This reflects poverty among STs.

Estimates of return to education suggest that higher levels of education are associated with higher returns across social groups in 1983. The return to secondary education is lowest among SCs relative to ST and non-SC/ST groups. It appears highest among STs. Conversely, the return to primary education's impact on living standards is highest among SCs, followed by STs. Surprisingly, the return on primary education's impact on wellbeing has declined significantly over time for all social groups. The return to primary education was 16.6 percent lower among STs in 2011-12 compared to 1983. Similarly, it was 15.9 percent lower for SCs and 10.7 percent lower for non-SC/STs during the same period. The study also reveals that, although positive, the returns to education are decreasing at a faster rate among STs relative to non-SC/STs. Thus, STs have lower educational endowments and experienced a rapid decline in the returns to education.

**4.2 Characteristic effect and coefficient effect**

The difference in mean consumption between social groups has been divided into the explained and unexplained parts. The explained part indicates the difference in consumption resulting from variations in predictors between the social groups. In contrast, the unexplained part reflects both the effect of discrimination and the influence of unobserved differences in endowments between the groups. This analysis was conducted using data from households residing in rural areas across all states in India. While most studies excluded the North-Eastern states, this study included those states. MPCE was used as an indicator of household consumption. Table 7 presents the results of the decomposition analysis based on Equation 6. Two models were used: Model 2, which includes regional dummies, and Model 1, which does not control for region-specific effects. Comparing these models helps to understand the role of region-specific disparities in income differences between groups.

Model 1 in Table 7 shows that the difference in log MPCE between ST and non-SC/ST was 0.214 in 1993-94. This difference is mainly due to an unexplained component, as it was 0.147 in 1993-94. The difference in MPCE between SC and non-SC/ST was higher compared to that between ST and non-SC/ST, amounting to 0.225 in 1993-94. However, this difference is primarily attributed to the explained part. The final part of Table 7 highlights a notable feature of this analysis: the predicted log MPCE among STs was higher than among SCs. Higher endowments among STs contributed to this higher predicted log MPCE. Nonetheless, the rate of return on endowments was lower among STs compared to SCs. Moreover, the situation changes over time, with STs losing ground to SCs. Table 7 shows that the difference in log MPCE between ST and non-SC/ST increased from 0.214 in 1993-94 to 0.235 in 2011-12. This change in the log MPCE difference is entirely due to the coefficient effect. The gap in mean consumption between SC and non-SC/ST narrowed significantly, as both endowment and coefficient effects decreased sharply. This suggests that the social groups SC and non-SC/ST are converging in both endowment levels and the returns on those endowments. Conversely, the difference between ST and non-ST (as well as SC and non-ST/SC) widened considerably, driven by a rise in the return on endowments. Model 2, which incorporates regional fixed effects, yields significantly different results, as shown in Table 7. It indicates that the disparity in consumption between ST and non-SC/ST decreases substantially when regions are controlled for. According to Table 7, the difference in well-being between ST and non-SC/ST appears statistically insignificant at all time points except 2004-05. This suggests that the average predicted well-being between ST and non-SC/ST is significant throughout the study period, but these differences tend to disappear once regional effects are accounted for. Therefore, the disparities in well-being are mainly due to regional differences. Most STs reside in backwards regions, and thus, the increasing disparities between ST and non-SC/ST are primarily driven by regional disparities and isolation of STs, rather than social discrimination.

On the contrary, the disparity in well-being between SC and non-SC/ST decreased substantially when regions were used as dummies. However, the difference in well-being between them remains significant.

**Table 7: Decomposition of Consumption Differential between Social Groups**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Model – 1 | | | | Model – 2 | | | |
|  | 1987-88 | 1993-94 | 2004-05 | 2011-12 | 1987-88 | 1993-94 | 2004-05 | 2011-12 |
| Differential in Consumption between ST and non-SC/ST | | | | | | | | |
| ST | 6.613\*\*\* | 6.650\*\*\* | 6.762\*\*\* | 6.965\*\*\* | 6.759\*\*\* | 6.727\*\*\* | 6.954\*\*\* | 7.018\*\*\* |
| non-SC/ST | 6.856\*\*\* | 6.864\*\*\* | 6.981\*\*\* | 7.200\*\*\* | 6.788\*\*\* | 6.780\*\*\* | 6.785\*\*\* | 7.003\*\*\* |
| Difference | -0.243\*\*\* | -0.214\*\*\* | -0.219\*\*\* | -0.235\*\*\* | -0.0294 | -0.0531 | 0.169\*\*\* | 0.0146 |
| Decomposition |  |  |  |  |  |  |  |  |
| Explained | -0.0658\*\*\* | -0.0679\*\*\* | -0.0277\*\*\* | -0.0209\*\*\* | -0.0748\*\*\* | -0.0748\*\*\* | -0.0794\*\*\* | -0.108\*\*\* |
| Unexplained | -0.177\*\*\* | -0.164\*\*\* | -0.191\*\*\* | -0.214\*\*\* | 0.0455 | 0.0217 | 0.249\*\*\* | 0.122\*\* |
| SC/non-SC/ST |  |  |  |  |  |  |  |  |
| Differential in Consumption between SC and non-SC/ST | | | | | | | | |
| SC | 6.626\*\*\* | 6.639\*\*\* | 6.764\*\*\* | 7.014\*\*\* | 6.603\*\*\* | 6.668\*\*\* | 6.596\*\*\* | 6.844\*\*\* |
| non-SC/ST | 6.856\*\*\* | 6.864\*\*\* | 6.981\*\*\* | 7.200\*\*\* | 6.788\*\*\* | 6.780\*\*\* | 6.785\*\*\* | 7.003\*\*\* |
| Difference | -0.230\*\*\* | -0.225\*\*\* | -0.217\*\*\* | -0.186\*\*\* | -0.185\*\*\* | -0.112\*\*\* | -0.189\*\*\* | -0.159\*\*\* |
| Decomposition |  |  |  |  |  |  |  |  |
| Explained | -0.148\*\*\* | -0.148\*\*\* | -0.107\*\*\* | -0.0884\*\*\* | -0.131\*\*\* | -0.136\*\*\* | -0.119\*\*\* | -0.0948\*\*\* |
| Unexplained | -0.0819\*\*\* | -0.0777\*\*\* | -0.109\*\*\* | -0.0974\*\*\* | -0.0545 | 0.0243 | -0.0696\*\* | -0.0641\*\* |
| ST/SC |  |  |  |  |  |  |  |  |
| Differential in Consumption between ST and SC | | | | | | | | |
| ST | 6.613\*\*\* | 6.650\*\*\* | 6.762\*\*\* | 6.965\*\*\* | 6.759\*\*\* | 6.727\*\*\* | 6.954\*\*\* | 7.018\*\*\* |
| SC | 6.626\*\*\* | 6.639\*\*\* | 6.764\*\*\* | 7.014\*\*\* | 6.603\*\*\* | 6.668\*\*\* | 6.596\*\*\* | 6.844\*\*\* |
| Difference | -0.0131\*\*\* | 0.011\*\*\* | -0.00247\*\*\* | -0.0493\*\*\* | 0.156\*\*\* | 0.0584 | 0.358\*\*\* | 0.174\*\*\* |
| Decomposition |  |  |  |  |  |  |  |  |
| Explained | 0.0679\*\*\* | 0.0610\*\*\* | 0.0702\*\*\* | 0.0607\*\*\* | 0.0455\*\*\* | 0.0699\*\*\* | 0.0589\*\*\* | 0.00836 |
| Unexplained | -0.0829\*\*\* | -0.0499\*\*\* | -0.0726\*\*\* | -0.110\*\*\* | 0.110\*\* | -0.0114 | 0.299\*\*\* | 0.165\*\*\* |

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Source: Author’s calculation from several quinquennial surveys of NSS-CES data

Model 2, shown in Table 7, indicates that the difference in well-being between SC and non-SC/ST was 0.185 in 1987-88. It declined to 0.159 in 2011-12. Thus, the trend of disparity in well-being between SC and non-SC/ST remained similar in both situations in Model 1 and Model 2. Like in Model 1, in Model 2, the explained component outweighs the unexplained component in the decomposition of the disparity in well-being between SC and non-SC/ST. Therefore, unlike ST, the disparity in well-being between SC and non-SC/ST is mainly not caused by regional disparity. Instead, it significantly stems from differences in endowment holdings.

The decomposition of the consumption differential between the STs and the SCs under Model 2 reveals an interesting result. Unlike in Model 1, the differential here appears to take positive values. Predicted mean well-being among the STs is higher than that of the SCs. This indicates that within the same region, predicted well-being is higher among the STs compared to the SCs. However, when considering all regions together, the well-being of the STs is lower than that of the SCs. This seems to be because the STs are located in underdeveloped regions. Furthermore, increasing regional disparities intensify the disparity in well-being between SC and ST.

**5. Summary and Conclusion**

This study aims to investigate the major reasons for increasing consumption disparities between ST and non-ST groups. As revealed earlier, poverty disparities between ST and non-ST are mainly driven by the growing growth differential between these groups. Here, we attempt to capture the differential in endowments and the differential in returns to those endowments across social groups over time. Two distinct sets of regressions were used to examine the changing dynamics of the coefficient and endowment effects among social groups over time. The study indicates that a gap in living standards existed in 1993-94 when the specified independent variables were controlled. This gap further widened by 2011-12. Estimates show that the return to land is significantly higher among ST compared to non-SC/ST groups. However, the dynamics change over time: although the return to land increased for both STs and non-SC/ST, it grew at a higher rate among non-SC/ST groups. Moreover, STs hold the highest proportion of SEA relative to other social groups, and this share increased over time among STs. When combining SEA with agricultural labor, it appears that nearly 70% of ST households depend directly on agriculture. However, STs are the least effective in increasing the return to land over time. Additionally, land per capita cultivated area among STs has decreased most significantly over time. Consequently, returns on endowments such as education and land holdings are declining at a higher rate among STs compared to non-STs, reflecting widening poverty disparities between these groups.

The disparity in consumption between the STs and non-SC/STs is mainly attributed to regional disparities. In rural India, the STs are located in the remote and underdeveloped regions with a lack of educational facilities, irrigation, etc. Historically, the STs were delinked from mainstream development. Their traditional potential, their resources have not been used for their development. Their regions are generally considered bargain regions. These regions are still in the darkness of underdevelopment. This study reveals that the differential in consumption expenditure could have been eliminated by developing the ST-populated regions.

The story of SCs is different. The SCs were socially discriminated against. Thus, the introduction of regional dummies substantially reduces the differential in well-being between SC and non-SC/ST. But still, it remains significant. The disparity between SCs and non-SC/STs is mainly contributed to by endowment differences. Further, the differential between SCs and non-SC/ST reduced substantially over time. And so, the endowment differences. The affirmative measures could have been responsible for this decline in endowment differences.

This study is based on publicly available secondary data (NSSO Consumption Expenditure Surveys), and hence did not require prior ethical approval.

Definitions, Acronyms, Abbreviations

NSSO: National Sample Survey Organisation

CES: Consumption Expenditure Survey

SC: Scheduled Caste

ST: Scheduled Tribe

Non-SC/ST: Neither Scheduled Caste nor Scheduled Tribe

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